access to the west and south of the reservoir is extremely limited by steep topography and the presence of the reservoir. However, suitable developable areas are located directly to the northwest and to the north/northeast of the reservoir (see Figure 24). Other areas are identified as being simply too difficult and challenging or too precious to compromise and are left in their natural state. All these opportunities and challenges will be explored and presented in the next section of the master plan.

Program of Use

The framework for this master plan is based on a design program thoroughly coordinated among the consultant, the NC Division of Parks and Recreation, The South Mountains State Park Advisory Committee, other agencies, and public comments received during the planning process. The design program outlines specific project opportunities within the three significant park sections. The program elements identify circulation and access issues, specific user activities such as camping, picnic expansion and hiking and equestrian improvements, and a unique opportunity for an environmental education center that focuses on serving people of all abilities, with special attention to universal design for populations with special needs. Another key program element is to provide adequate facilities for maintenance and management by park personnel.

Upon completing the analysis phase, the consultant prepared alternative development plans for the initial design program that explored various concepts for depicting development options.

Clear Creek Reservoir from top of dam, August 2007

These alternative studies were then critiqued and evaluated by the consultant and the NC Division of Parks and Recreation and the best options selected to reflect the written program.

After a public presentation of the preliminary master plan, the key elements of the plan and program were posted on the website for further input and comment. The final design program was determined by the consultant after review and evaluation of the alternatives and the many other environmental and regulatory factors that influence the park development.

Master Plan Overview

The master plan for the park is described in the following pages of this document. The plan divides the proposed development into three sections: Jacob Fork, Henry Fork, and Clear Creek, illustrated in Figure 25.

The master plan recommends the development of a number of facilities that will be accompanied by increased park visitation. These facilities and increased visitation rates result in a direct need for additional park staff. Anticipated staffing needs are summarized in Appendix H.

On the master plan maps, colored/rendered areas illustrate areas where new facilities are recommended. Specifically, new buildings are indicated in red, existing buildings (when surrounded by new development plans) are indicated in burgundy, new pedestrian paths are indicated in yellow/orange, and new roads are indicated in grey. A labeled plan is included at the introduction to each park section master plan. Subsequently, following their text descriptions, certain areas are enlarged for more detailed legibility. Labels shown on the plans in *italics* denote existing facilities, trails or destinations. Labels shown in regular text (not in italics) indicate elements recommended by the master plan.

This master plan design is based upon the best available data*. Though space is available for noted design features and areas, more detailed soil, geotechnology, topographic, floodplain, wetland, ecological and other studies will be warranted to fully assess

* The data used for master planning is not survey quality. Data utilized is summarized in the Resources and References section of this document.

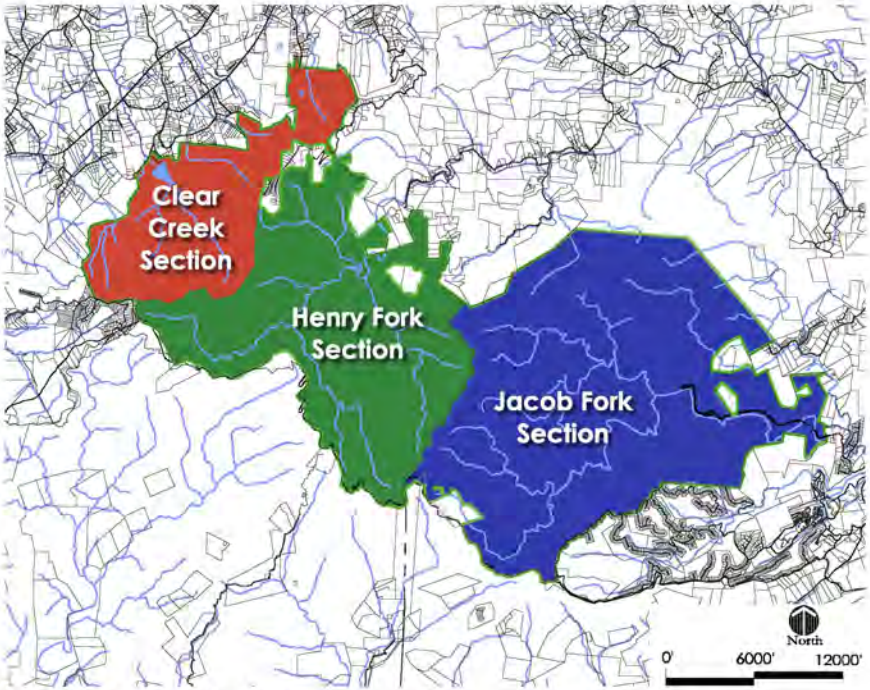


Figure 25: Park Sections

feasibility. Planning is a dynamic process. The availability of more detailed information over time may result in a final built product that is different than that depicted in this plan.

The master plan proposes several projects that will have impacts on surface waters and plant and animal habitats; however, design specifications for stream crossings, buffers, building footprints, final building locations, etc., are not yet finalized. An environmental assessment will be produced as part of the review process for this master plan, and the NC Division of Parks and Recreation will seek comments from all review agencies regarding potential regulatory requirements. As construction plans are developed, appropriate consultations with state and federal agencies will be undertaken to ensure compliance with all resource protection regulations. It will be the intention of the NC Division of Parks and Recreation to avoid or minimize impacts for all projects involving wetlands, streams, rare species, and their habitats. Appropriate delineations will be conducted for all stream crossings that are deemed by the NC Division of Water Quality and the US Army Corps of Engineers to require permitting under Section 401/404 of the Clean Water Act. The NC Division of Parks and Recreation expects that all stream crossings will be constructed with the strictest adherence to all state and federal water quality regulations and permit requirements. Appropriate rare species surveys and consultations with the appropriate agencies will be conducted to avoid or minimize impacts and to ensure compliance with all regulatory requirements. Comments provided on the master plan by the NC State Clearinghouse and the US Fish and Wildlife Service are included in Appendix B.

Hiking and Day Use

Park Trails Review

This master plan makes recommendations for short trails associated with facilities. A larger overall assessment of the existing park trails and proposed future trails is outside the scope of this master plan. It is recommended that park staff work with NC Division of Parks and Recreation trails, natural resources, and design and development staff to produce a comprehensive trails assessment. It is further recommended that this assessment include a baseline inventory of the existing trail system; an evaluation of the existing construction, maintenance, safety, and resource protection constraints; and recommendations for the trail system's overall scope, including new trails, closures or re-routes, connections from existing to proposed areas, and construction and maintenance standards.

Based on public input for this master plan, an estimate of future needs (such as additional trail miles) is recommended through a comprehensive trails assessment. It is also recommended that the trails needs assessment include input of user groups such as hikers, bikers, backpackers, equestrians, and anglers.

Jacob Fork Section

The overall master plan for the Jacob Fork section of the park is illustrated in Figure 26. Enlargements of specific areas for more detailed review are included in following figures.

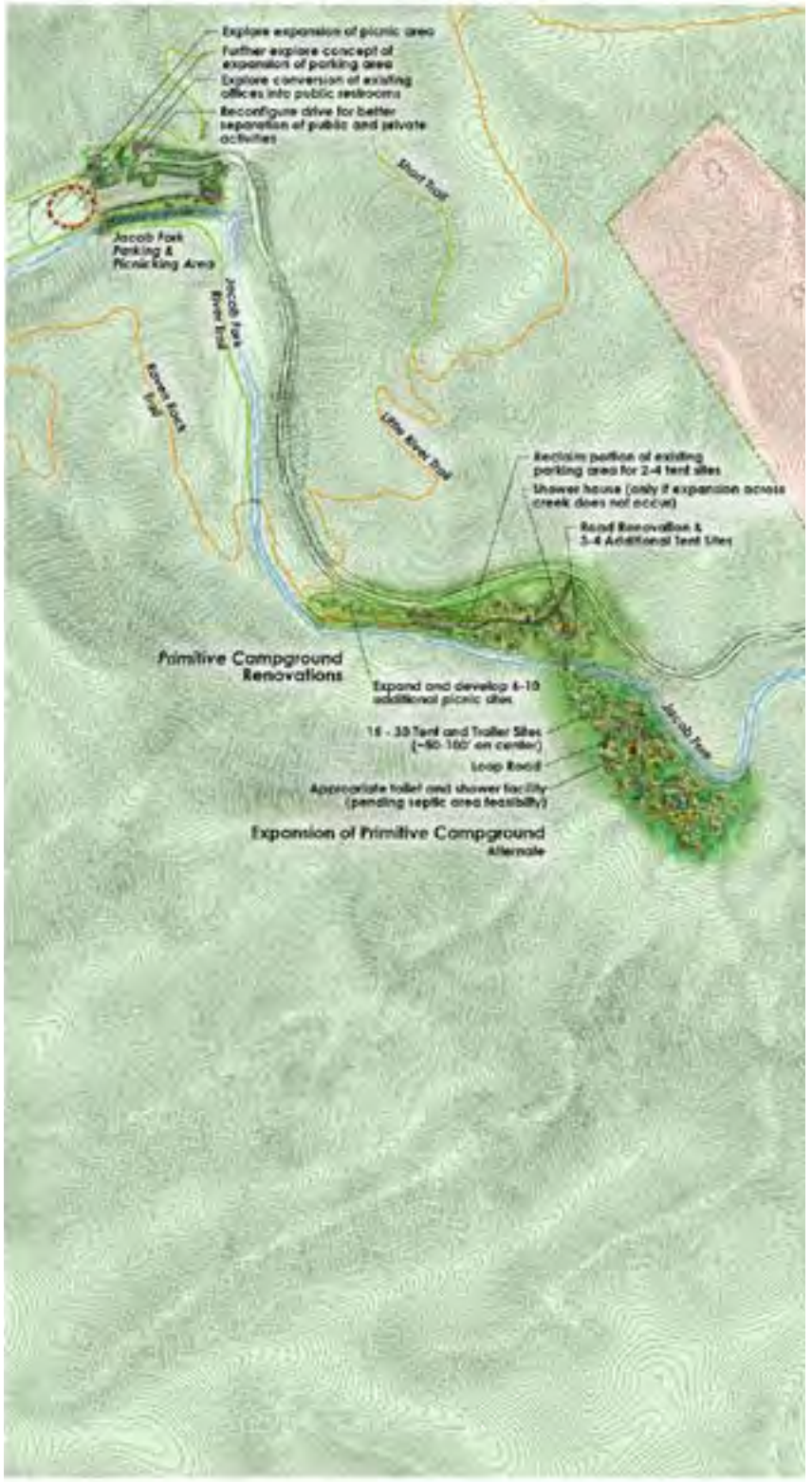
Circulation and Park Access

The Jacob Fork section of the park is accessed along South Mountain Park Avenue, described in more detail in the Roads and Utility Inventory earlier in this document and illustrated in Figure 26.

The point of entry to the park currently is through a gate just to the east of the easternmost bridge in the vicinity of the visitor center and the first ranger residence as one enters the park. A new entry gate will be built just to the west of the existing ranger residence driveway, providing a turnaround opportunity for after hours and relieving the current safety issue of multi-point turns at the gate. This entry gate will include stone columns and a new park sign feature.

Three bridges carry South Mountain Park Avenue over Jacob Fork. All bridges appear to be in good condition. These bridges were

Future stream restoration area



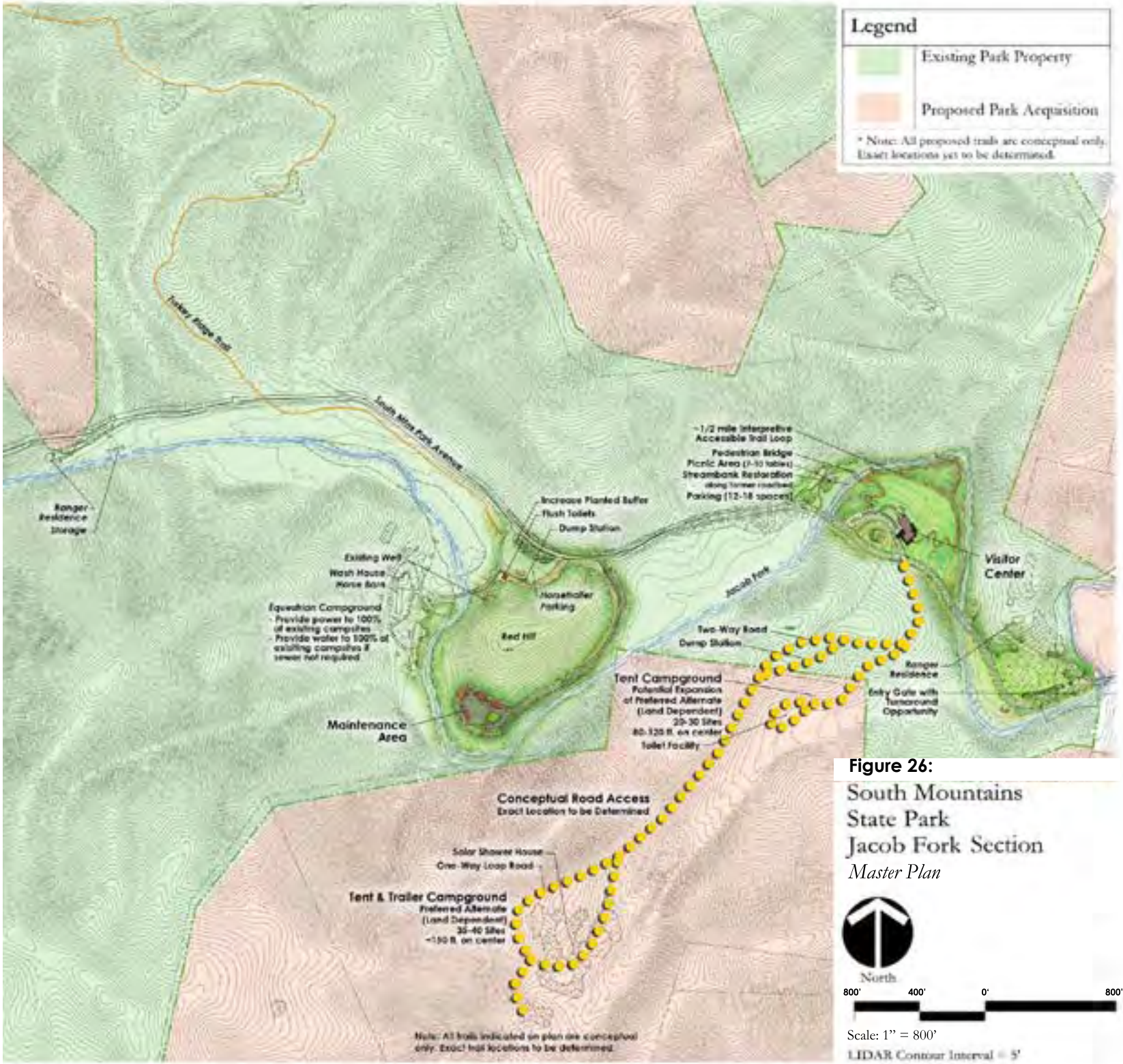


Figure 26:

South Mountains
State Park
Jacob Fork Section
Master Plan

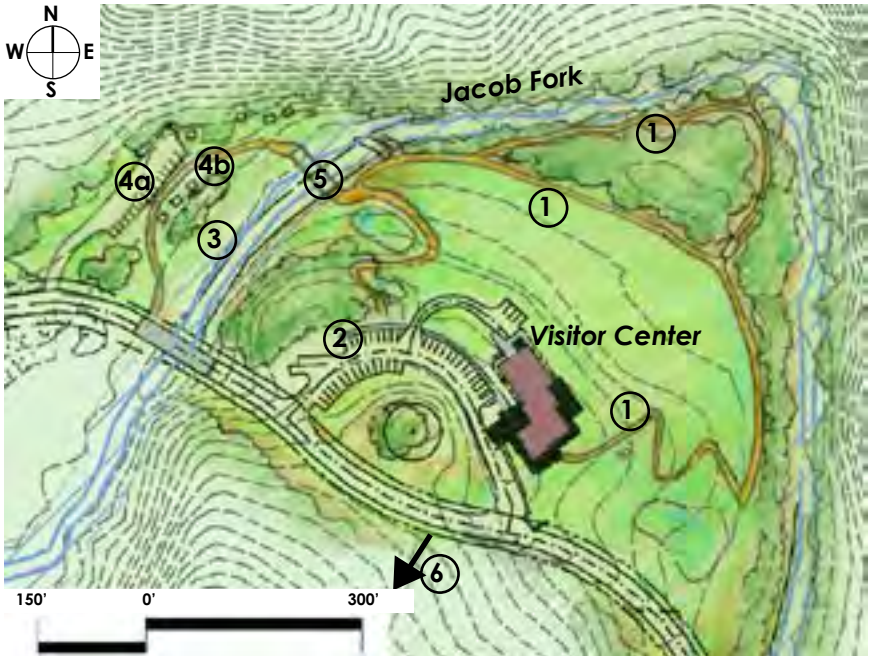


Figure 27: Visitor Center and Vicinity

designed for vehicular access only, not providing separate passage for pedestrians crossing the stream on the bridge.

Visitor Center Interpretive Trail

Figure 27 illustrates the master plan recommendations in the vicinity of the South Mountains State Park Visitor Center.

An approximately ½-mile interpretive trail, proposed to meet Americans with Disabilities Act (ADA) guidelines, will originate at the visitor center, providing several different experiences for the hiker as it winds through a meadow, woodland edge, woodland interior, and stream side to the north of the center. Wayside exhibits will help interpret the trail. This short trail system will provide a convenient and accessible trail, allowing the user to experience a little of what the park has to offer in a short time period.

This paved trail ① will begin at the visitor center porch and wind down the grade to the area by the current erosion control basin.

Portion of visitor center parking area

This basin area will be converted into an educational opportunity with modification into a stormwater filtration basin. The visitor can then learn about the types of native plants and filtration systems that protect Jacob Fork. The trail will split towards a woods edge trail and a stream side trail, eventually looping back up towards the northern portion of the parking area, returning the visitor back to the visitor center.

Visitor Center Parking Expansion

As was described in the Roads and Utility Inventory earlier in this document, the visitor center currently has 35 paved parking spaces for the use of the public, a lower lot providing five staff parking spaces, and four bus parking spaces ②.

Once the exhibit hall opens in the visitor center, the need for additional parking in this area is anticipated. Additional parking in direct connection with the existing parking lot is not considered feasible at this time due to several constraints. These primary constraints include the existence of steep slope banks between the visitor center and Jacob Fork, as well as the presence of a large white oak tree, fairly centrally located within the existing parking area, which was preserved through the construction of the center. This tree is beginning to show signs of stress.

Large Oak protected during visitor center construction

If this tree degrades to such a point that it requires removal, some opportunity may exist for additional parking in this area, as well as realignment of the road adjacent to the tree.

Visitor Center Area Stream Bank Restoration

Stream bank restoration and stabilization of the old road bed near the visitor center was addressed in the 1995 environmental assessment for the construction of the visitor center. It is recommended that this restoration ③ be undertaken in order to protect the water quality of Jacob Fork and to discourage further foot traffic on unstable stream banks in the area. Figure 27 illustrates this area for restoration. This area of repair is one of the few places along the Jacob Fork which is in need of restoration.

Visitor Center Picnic Area and Park Connectivity

Additional parking (12-18 spaces) ④a and a picnic area (7-10 tables) ④b will be located on a shallow sloped area on the northwest side of Jacob Fork to the northwest of the visitor center. Figure 27 illustrates this area. The location for this picnic and parking area is suitable for this use because of its easy access off of the main park road, the reasonable topography, and its proximity to both the river and the visitor center.

A strict buffer to Jacob Fork will be maintained in this area (minimum of 50 feet) to protect the stream during and after construction of this parking and picnic area.

A pedestrian bridge ⑤ across Jacob Fork would afford a safer connection from the picnic area to the visitor center via the proposed interpretive trails than would otherwise be available on foot across the vehicular bridge along South Mountain Park Avenue. It is recommended that the park have an engineer evaluate the bridge abutments from the former road in this location for their reuse as a pedestrian stream crossing.

A hiking trail connection to link this proposed picnic/parking area and the existing park trails that begin at the current horsetrailer parking area will be evaluated through a comprehensive trails assessment and is recommended if it is feasible.

New Tent and Trailer Campground
(Land-Dependent Preferred Alternate)

A tent and trailer campground ⑥ is proposed on a tract being considered for acquisition, located to the southeast of Red Hill, and across South Mountain Park Avenue from the visitor center (illustrated in Figures 26 and 27). This proposed tent and trailer campground is the preferred alternate to the existing primitive campground expansion, described later in this section, due to the location's proximity to the visitor center, providing for simpler wayfinding, and its protection of Jacob Fork due to no need for a stream crossing. Site selection also is based upon the relatively flat, selectively cleared land that is not prone to flooding compared to other flat, undeveloped land in the vicinity of South Mountain Park Avenue. Additionally, it has good access to the main park road. The campground will be intended to continue the park's theme of campsites with a backcountry character.

This proposal includes two camping areas: the primary camping area is proposed as a larger tent and trailer campground, based around a loop road, in an already selectively cut open area; expansion to this area is proposed over time as a smaller tent campground, also based around a loop road, and adjacent to a natural draw.

The proposed tent and trailer campground would provide for 35-40 sites. The sites would provide a sense of privacy and backcountry character through spacing at approximately 150 feet on center.

Each campsite would have a tent pad, picnic table, lantern hook, and fire ring. The majority of sites would likely be accessed by backup space parking, sized to accommodate a vehicle and trailer. A percentage of the sites would be designed to accommodate pull-throughs for longer trailers and large rigs.

These facilities will require potable water. If a new well is cost prohibitive, access from the visitor center well via pump will be explored.

It is preferred that 100 percent of the sites in this campground loop have individual access to potable water. However, if sewer hookup is required by code for any site that has water, spigots scattered at regular intervals throughout the loop will be used to provide potable water. At least one site should be provided with a sewer hookup.

Electricity would be desirable at all sites in this loop. Solar energy or other renewable energy options both for heating water and providing electricity should be explored whenever possible.

Providing trail access from this new campground to Raven Rock Trail is recommended.

A sewer dump station is proposed along the road that would lead to the new tent and trailer campground.

New Tent Campground
(Land-Dependent Potential Expansion of Preferred Alternate)

A land-dependent small tent campground is proposed as a future expansion to the land-dependent tent and trailer campground (refer to Figure 26). Pending further ecological analysis of this site, if it is deemed unfeasible, the expansion of the primitive campground across Jacob Fork as a tent and trailer campground will be considered.

This land-dependent expansion alternate would likely provide for 20-30 tent sites approximately 80-120 feet on center. It is proposed to contain a toilet facility appropriate to its final determined size. Water would be provided by spigots scattered at regular intervals throughout the site. Electricity would be provided as a centralized amenity.

Maintenance Area

Figure 28 illustrates the location and schematic layout for the Jacob Fork maintenance area. Site selection for this maintenance area in the Jacob Fork section of the park was based on reasonable topography for the programmed use of the space, a location behind Red Hill out of view of South Mountain Park Avenue, and a somewhat central location to the rest of the developed park area off the main park road. The designated area is comprised of approximately one and one-quarter acres. Access to the maintenance area will be constructed primarily on an existing old road bed in order to minimize impact to surrounding trees and slopes in the area.

This maintenance area ⑦ will be enclosed by security fencing and will include two 40 feet by 100 feet buildings. One of these buildings will be a warehouse building and mechanic shop including a vehicle lift. The other building will include offices, restroom facilities with a universally-designed emergency shower station, and a carpentry shop.

An equipment storage shed also is included in the program for the maintenance area. This shed will have five bays, similar to the shed at Raven Rock State Park. The shed will be covered, with no side walls.

Three small metal storage buildings will be relocated and reused from existing locations within the park. These buildings are approximately 16 feet by 20 feet and can be sited on blocks, but do require vehicular access from the entry drive.

The site also will include an outdoor vehicle wash area, encompassing up to 15 feet by 20 feet. This area will be covered and have direct access to a hand-held hose. Wash water will be delivered to the septic area through an oil/water separator.

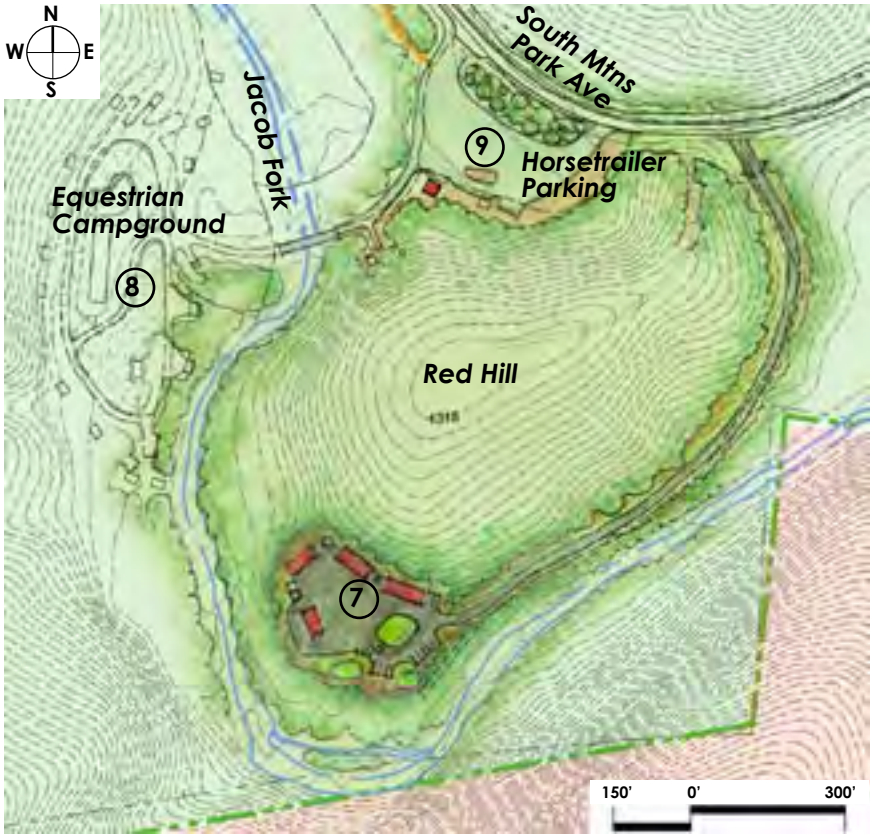


Figure 28: Maintenance Area and Equestrian Areas

The site also will include a 100-gallon used oil storage bin, a six-bay vehicle storage shed (~24 feet by 50 feet), 10 to 12 paved parking spaces, and above-ground 1,500-gallon gas and 500-gallon diesel pumps that are concrete encased and 5 feet from any building at a minimum. Drive access to the site will be designed to accommodate tractor trailer access.

The site will require electric, water, phone, and wastewater utilities. Electric may be trenched during construction under the entry drive from South Mountain Park Avenue. It is recommended that the park explore renewable energy options for this project. The well at the equestrian parking area may be appropriate as a potable water supply. An appropriate septic area will be defined for the site prior to construction, and will be sized appropriately to accommodate restrooms and equipment wash runoff.

Stormwater runoff will be directed through a filtering system, including an oil/water separator where appropriate, in order to cleanse the water prior to it entering the groundwater or surface waters of the site.

The site will be appropriately buffered from adjacent land uses, including the existing equestrian campground. Impervious surface will be kept to a minimum. The site's proximity to the sensitive waters of Jacob Fork will require extreme care and sensitive planning through the next phases of design to protect this water. A minimum 50-foot buffer will be maintained between any construction on newly impacted areas of this site and Jacob Fork. The existing old road bed that will be used for access to the site may encroach on this 50-foot buffer. Additional precautions will be taken in these areas during construction in order to minimize impacts to Jacob Fork.

Existing Equestrian Campground

Figure 28 illustrates the location and context of the existing equestrian campground and horsetrailer parking. The equestrian campground consists of 15 campsites. Based on needs expressed to park staff by existing users of this campground ⑧ as well as public comment received through this master planning process, electricity will be provided to all of the existing equestrian campsites.

Equestrian campground

Water in this campground currently is provided by spigots scattered through the site. If code does not require the provision of septic hookup for any site with water hookup, it is recommended that potable water be provided to each campsite.

Existing Horsetrailer Parking Area

The existing horsetrailer parking area (refer to Figure 28) provides approximately three-quarters to one acre of area for parking, excluding circulation around the vicinity of the area. This parking area currently is unmarked.

Improvements will be made to the planted buffer between the horsetrailer parking area (9) and South Mountain Park Avenue to help screen the large parking area from the entry road and to provide shade opportunities at the edge.

Currently, the parking area is serviced by two pit toilets. These will be upgraded to flush toilets, pending identification of an appropriate area for septic treatment.

A dump station will be provided in this parking lot. It will be designed for clear and safe access and to minimize impact on existing parking capabilities of the lot.

Existing Primitive Campground Renovation

Figure 29 illustrates the recommendations for the renovations and expansion of the existing primitive campground as well as the area surrounding the Cicero Branch parking area.

The existing primitive campground is located on the south side of South Mountain Park Avenue, adjacent to Jacob Fork. It currently has eleven campsites, two pit toilets, and two water spigots.

The Cicero Branch parking lot formerly was used for horsetrailer parking. Since the completion of the horsetrailer parking lot along South Mountain Park Avenue to the east of this facility, this lot has not been fully utilized. Therefore a portion of the eastern end of this parking area will be renovated into two to four new primitive camp sites (10a).

Figure 29: Existing Primitive Campground and Vicinity

The current facility also will be renovated on its eastern end by renovation of the road and addition of three to four new primitive camp sites (10b), while respecting Jacob Fork to the south.

This campground is proposed to contain a shower house. Water and electricity will remain as a centralized amenity in this campground.

Existing Primitive Campground Expansion for Tent and Trailer
(Alternate)

A land-dependent proposal for a new tent and trailer campground was described earlier in this section. If that new campground is found to be unfeasible, this alternate will further expand and improve the existing primitive campground with a new tent and trailer campground (11).

This proposal will require one stream crossing of Jacob Fork. This will be provided by a bridge with both vehicular and pedestrian access.

Based on available space, the site may have the potential for 15 to 30 campsites spaced 50 to 100 feet on center along several loop roads. Special attention will be paid to minimizing impacts on Jacob Fork's water quality during the construction stages of this project.

The site is proposed to contain a toilet facility appropriate to its final determined size. Potable water should be provided by spigots scattered at regular intervals across the site. Electricity should be provided at each campsite.

Other Picnicking Opportunities

The Jacob Fork picnic areas are in very high demand. Additional picnic areas in the park that are in good proximity to the river and adjacent to safe and convenient parking will help relieve the demands and pressure on the Jacob Fork picnic areas and parking.

Therefore, the picnic area adjacent to the Cicero Branch Parking area will be expanded ⑫. It is estimated that six to ten new picnic sites will be possible to the north of Raven Rock Trail in the vicinity of its trailhead in this parking area. This picnic area expansion is illustrated in Figure 29.

Jacob Fork Parking Area and Picnic Area (Alternate)

The Jacob Fork parking area is the terminus of South Mountain Park Avenue, and it provides access to a number of trailheads into the park. Therefore, parking spaces in this area do not meet demand during busy weekends. Park usage continues to increase. Expansion and improved circulation patterns in this parking area could help to alleviate the heavy demands on this parking lot. Land to the west of the parking area, currently used for picnicking, is relatively flat, and could potentially support additional parking spaces. It is recommended that further evaluation be performed on the feasibility for expansion of parking facilities into this area ⑬ at the western end of the parking lot. Figure 30 represents the area

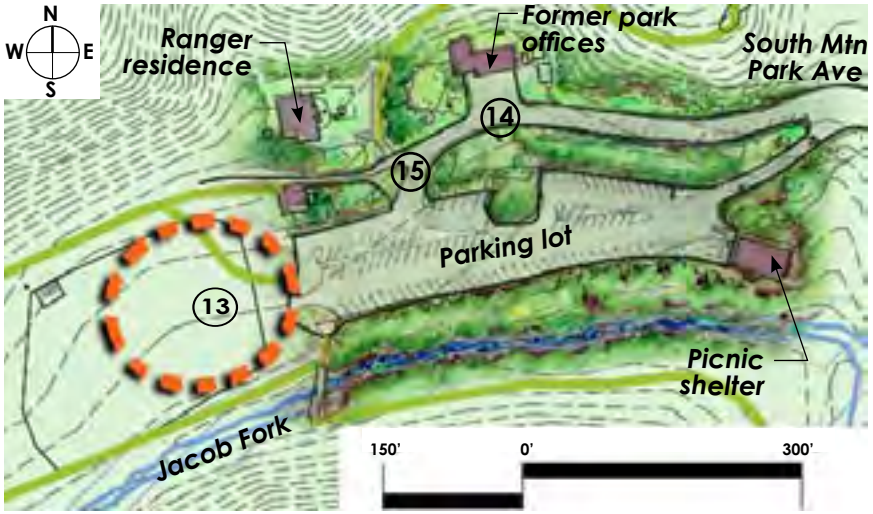


Figure 30: Jacob Fork Parking Area and Vicinity

Jacob Fork picnic area

recommended for improvement. An additional 30 to 40 spaces are recommended if feasible in this area.

The parking expansion would provide for more visual connection between the parking lot and the restroom facilities provided in the existing comfort station.

Several constraints in this area necessitate the recommended further evaluation, including the exact location of the septic area for the comfort station and, based on the amount of area deemed suitable for parking, evaluation of a suitable site for relocation of the displaced picnic facilities.

If this parking is deemed feasible, as with any development in the park, special attention must be given to buffering the parking from Jacob Fork, sedimentation and erosion control during construction, as well as water quality treatment of any runoff from the new parking lot prior to its entry into the creek post-construction.

Re-Use of Former Park Office Building

An architectural review of the former park office was performed as a part of this master planning process. The review is included in Appendix I.

Based on staff needs, the workshop area of the former park office building ⑭, located to the north of the Jacob Fork parking area, will be utilized for emergency/maintenance equipment parking and storage. The architectural review of this building identified this as a compatible use.

Former park office building

The existing toilet building is located approximately 350 feet from the primary parking. This distant location has caused confusion for park visitors in the past, resulting in unnecessary disturbance at the nearby existing ranger residence and former park office. Further architectural study will be performed to evaluate the potential to renovate the former park office building for public restrooms. Evaluation for septic feasibility will also be required.

The area in front of and in the vicinity of this building will be further evaluated for its potential to provide additional parking area.

Separation of Activities

The ranger residence located at the end of the Jacob Fork parking area was built as a private residence in the 1950s. It is not an ideal location for a ranger residence, since its proximity adjacent to the Jacob Fork parking area, as well as its driveway configuration, lead to an inadequate separation of activities in this area (see Figure 30). If a new appropriate location for this residence can be identified, it is recommended that the residence be moved from this location in the future. In the meantime, the residence's driveway from the parking area will be reconfigured for more clear delineation of private and public space, and additional evergreen plantings will be provided for screening for the parking area ⑮.

Ranger residence adjacent to Jacob Fork parking area

Henry Fork Section

Circulation and Access

Access to the Henry Fork section from the north was explored through this master planning process. Based on extensive studies of these areas by NC Division of Parks and Recreation staff and the consultant, neither vehicular nor trail access will be provided to the Henry Fork section of the park from the north. The following reasons justify this conclusion:

1) The old trails in this area have seven major stream crossings within the first mile of entry into the park. These streams are classified as *Outstanding Resource Waters*. In addition, the first mile of trail is subject to frequent flooding. Therefore, construction and maintenance of this trail for regular use would be expensive and environmentally damaging.
2) The relatively small reservoir was designed for water supply, not to support recreational use. It has extremely steep (65%+) and treacherous sides and a 35-foot high dam. Access to this reservoir would be ill-advised due to extreme concerns for public safety.
3) Access provided through this remote area would not serve to open the park to a significant new user base, as a Henry Fork entrance is no closer to any major population area than the current Jacob Fork parking area or proposed Clear Creek section entrance.

Potential Trail Development

Two old logging roads within the Henry Fork section may be suitable for use as trails pending additional erosion control and appropriate surfacing. They tend to parallel the river on each of its sides and have good grades. If converted to trails, these could provide approximately 14 miles or more of trail access within the Henry Fork section of the park.

Although these trails have been identified as suitable for equestrian use, accessibility to these trails from either of the other two sections of the park as well as connectivity between the trails themselves has not been identified. An assessment of this connectivity is recommended through the comprehensive trails assessment described earlier in this document.

Due to the length of trail required to access the Henry Fork section, and the length of potential trails in this section, planning for backcountry campsites in a reasonable location to trails will be included in the comprehensive trails assessment.

Stream confluence in Henry Fork section

Henry Fork Reservoir Dam

Clear Creek Section

Park Access

Access into the Clear Creek section of the park from US Highway 64 is currently somewhat circuitous and confusing (Figure 31). Access requires three turns that are more akin to forks in the road than true intersections. These turns are from Jenkins Road to Clark Loop, from Clark Loop to Branstrom Orchard Street, and then remaining on Branstrom Orchard Street at a fork with Pearson Avenue. Though another satisfactory route of entry was not fully resolved through this master planning process, it is recommended that this issue receive further study. Until such time as a more direct route from US Highway 64 to the entrance to the Clear Creek facilities can be developed, it is recommended that the park visitor be directed along the current access way by signage that utilizes clear wayfinding language and graphics to indicate the route to the park entrance.

Two parcels of land directly across from the Clear Creek section park entry are proposed for acquisition. These two parcels will allow for improved park buffering from neighboring land uses, as well as allowing for any potential reconfiguration to Branstrom Orchard Street that might be deemed necessary in the future to create a safer entry into the Clear Creek section of the park.

Clear Creek Reservoir

The current water elevation of the lake is predicted to rise by approximately 10 feet with the completion of dam renovation taking place during this master planning process. The master plan graphics represent that approximate elevation increase of the lake. Any development within the vicinity of Clear Creek Reservoir stemming from this master plan must take current and future lake elevations into consideration.

Circulation

The design intent for the entry road to the Clear Creek section of the park is to protect the significant oak trees below the dam, to avoid grading in proximity of the dam in order to protect the

Jenkins Road right turnoff ahead to Clark Loop

Clark Loop with right turn to Branstrom Orchard Street

Existing gravel parking lot at Clear Creek section access area

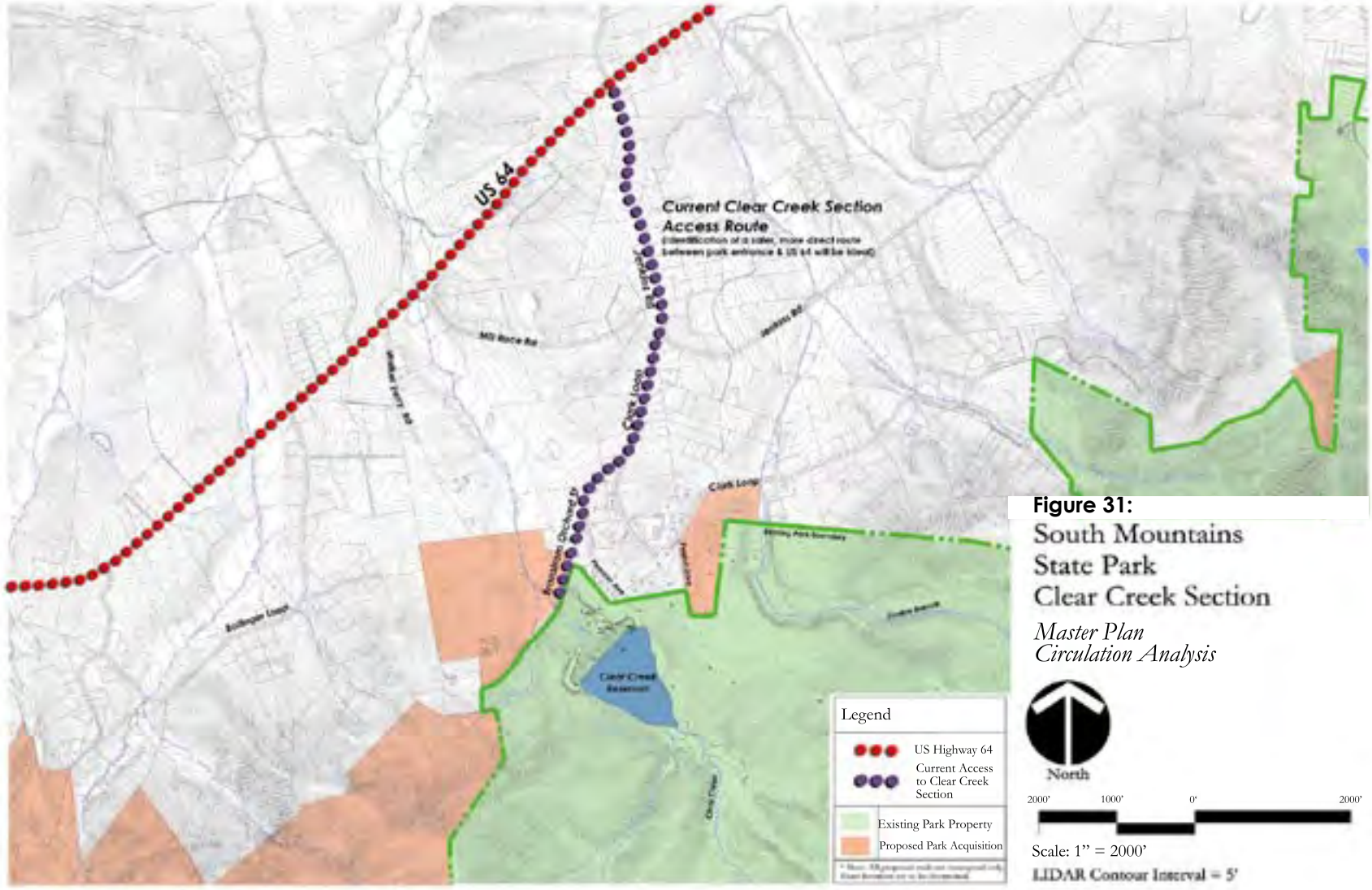


Figure 31:
South Mountains State Park
Clear Creek Section
Master Plan
Circulation Analysis

integrity of the dam, and to allow for some curvature in the road to smooth out the slopes.

Figure 32 illustrates the master plan for the Clear Creek section of the park. The entry road within the park will be realigned from its current configuration. The beginning of the road will be in approximately the same location as the existing gravel parking lot. A gated entry with an external backup space will highlight transition into the park property.

In order to achieve appropriate slopes on the entry road, the road will increase in grade earlier than the current gravel access road. The road will be located more to the north, closer to the park property line. In later design stages for the entry road, special attention will be given to buffering the park from adjacent properties.

The entry road will curve around to a drop-off/turnaround and parking for an Environmental Education Center described later in this section. A side road will intersect with the entry road, and will lead to group cabins, group camping, ranger residences, and a maintenance area.

Existing access road along edge of dam

Day-Use Picnic Area

Figure 33 illustrates the master plan recommendations in the vicinity of Clear Creek Reservoir.

A day-use picnic area ① will be located below the dam, just to the right as one enters the park. This site was selected for day use because of its proximity to the park entrance, the flat topography, and its proximity to Clear Creek and large oak shade trees.

This area will be served by a 25-40 space visitor parking area and will contain a picnic shelter/toilet facility and a septic area located away from Clear Creek (minimum 100 feet from stream). The picnic shelter, sized to accommodate at least 12 tables, will be centrally sited, along with 20 scattered picnic sites to be located among the large oak trees on suitably flat land.

A pedestrian bridge ② will cross Clear Creek below the dam and lead to an open play field ③ . This site has been selected due to its flat topography, excellent proximity to the public road, and its

Proposed day-use picnic area

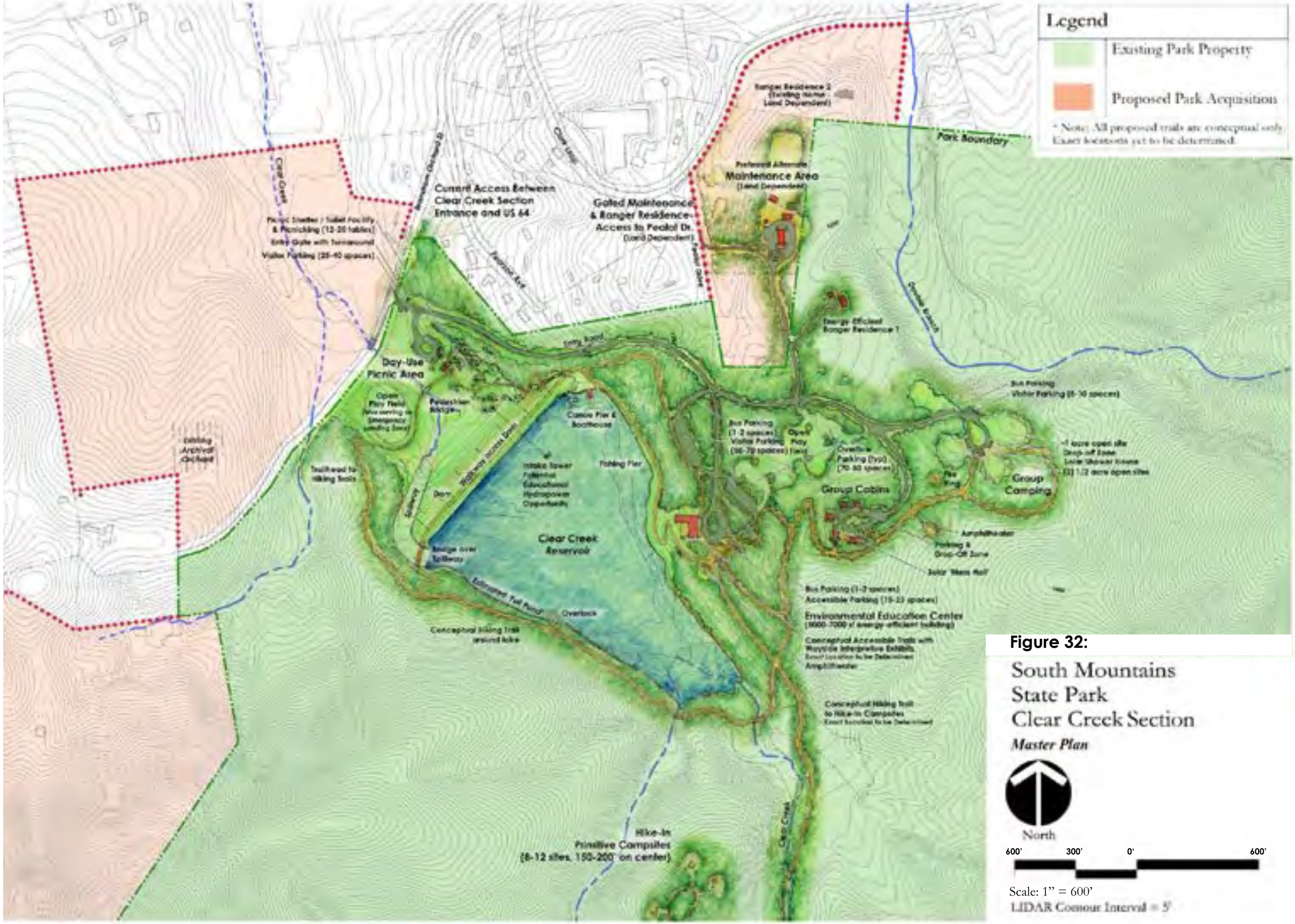


Figure 32:

South Mountains
State Park
Clear Creek Section
Master Plan

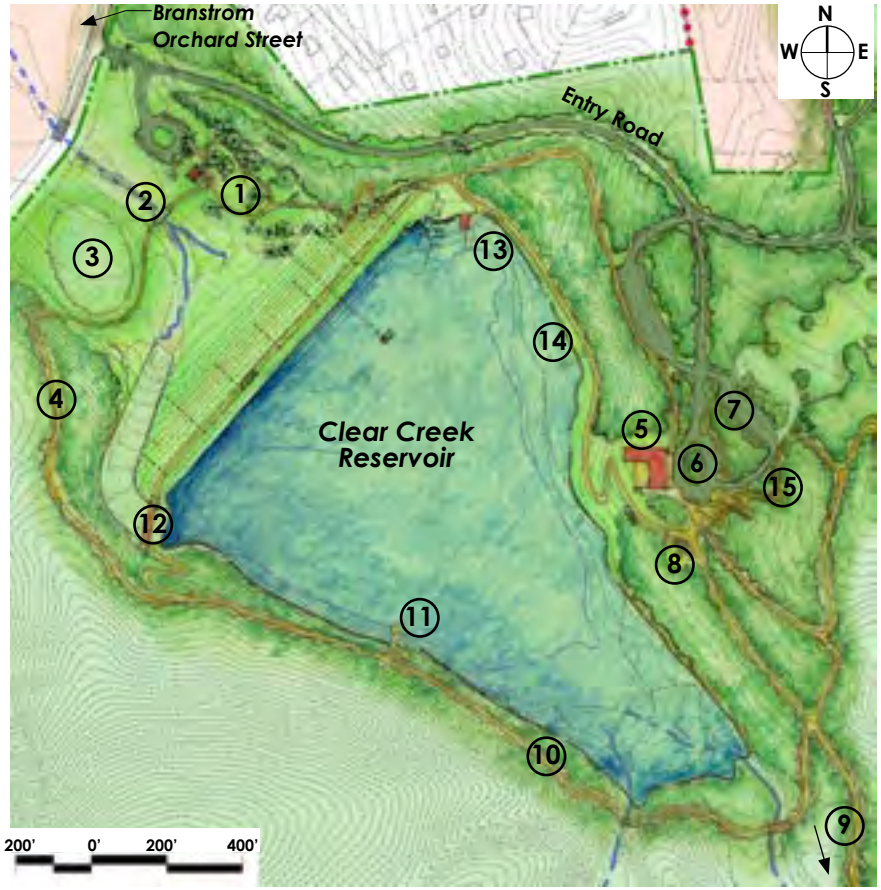


Figure 33: Proposed Facilities & Interpretive Trails

compatible use as an emergency landing zone (100-foot radius). The pedestrian trail will skirt the open field and will lead to an interpretive/educational hiking trail ④ around the lake. The trail plan is described in more detail under the Facilities and Interpretive Trails section to follow.

Environmental Education Center

The NC Department of Environment and Natural Resources and the NC Department of Health and Human Services (Appendix A) entered into a joint agreement to assist in obtaining funds for the development of an Environmental Education Center (EEC) in the Clear Creek section of the park. When implemented, it will be a 5,000 to 7,000 square foot energy-efficient building, with a focus on serving people of all abilities, with special attention to universal design for populations with special needs.

A potential site for the EEC ⑤ has been identified as a small, relatively flat patch of land near an area that has been invaded by kudzu on the eastern side of the Clear Creek Reservoir. Figure 33 illustrates the site for the EEC and its surroundings. The site will have good access to the lake as well as views to the lake and mountain range in the distance. The building will be sited to leave an ample buffer around the lake and allow room for stormwater/water quality features. Some minor adjustments to the site of the EEC may be required during design or development once the reservoir achieves its new high water elevation.

The program activities for this facility include classrooms, a resource room, an auditorium, staff conference room, main lobby/exhibit hall, offices, break room, and public toilets.

The building will have a southerly exposure, providing passive solar opportunities. If enough slope advantage is gained due to the changing grades around the site, there may be opportunity for a lower level storage area.

Previously impacted land proposed for EEC

Vehicular Circulation and Parking

Figure 33 illustrates a drop-off/turnaround area ⑥, sized to accommodate buses, recommended in direct relationship to the front door of the EEC. Fifteen to 25 parking spaces will be located in close proximity to the entrance. Additional parking ⑦ for the center will terrace up the adjacent slope to the north and northeast. An additional 50-70 spaces will be provided to serve the EEC, as well as 70-80 overflow spaces ideally as stable and grassed lots. These grassed lots also will serve as open play fields. Parking for three to four buses will be accommodated in close proximity to the EEC.

Facilities and Interpretive Trails

Pedestrian trailheads will be located at the EEC, leading to trails and amenities surrounding the lake, including the following (illustrated in Figures 32, 33 and 34):

⑧ Amphitheater in close proximity to the EEC for outdoor interpretive presentations and other events
⑨ Hike-in Primitive Campsites
⑩ Interpretive trail surrounding the lake
⑪ Overlook across the lake from the EEC
⑫ Trail crossing and pedestrian bridge over the spillway and dam
⑬ Canoe Pier and Boathouse
⑭ Fishing Pier
⑮ To Parking and Group Cabins and Group Camping

All trails and trail destinations will be opportunities for wayside interpretive signage and educational exhibits. All signage and exhibits will incorporate Braille for accessibility to those with varying sight abilities.

Group Cabins

Group overnight facilities have been sited in an area with slopes predominantly less than 10%, with predominant vegetation type of successional pine forest due to historical agricultural activities in this area, and within reasonable walking distance from the EEC.

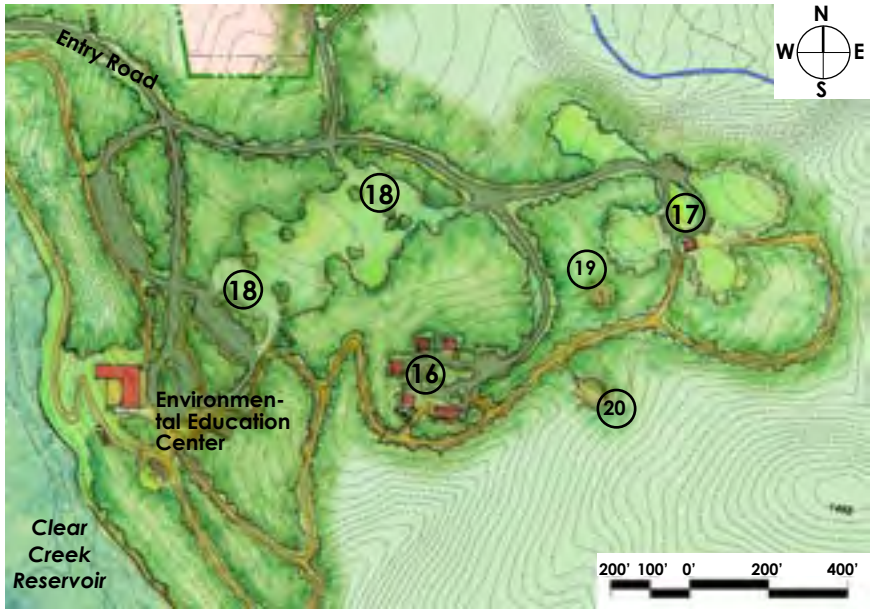


Figure 34: Proposed Environmental Education Center and Group Overnight Facilities

Figure 34 illustrates a pod of four barracks-style group cabins ⑯ located to the east of the EEC. These cabins are intended to provide an overnight opportunity to meet the needs of people of all abilities, with special emphasis on populations with special needs. The group cabins will be sleeping rooms with wash and toilet facilities. Additional space is available in the vicinity for future expansion if needed.

A 'mess hall' type dining facility will be associated with the group cabins. This facility will include a kitchen/prep room, a dining/public gathering room, and toilet facilities. Parking for the group cabins will be adjacent to the structures, with vehicular drop-off capability extending directly into the pod at each cabin in order to aid accessibility for special populations.

Group Camping

Figure 34 also illustrates group camping ⑰ farther up the slope from the group cabins, to the east. It will include two open camping fields approximately ½-acre in area each, and a larger, approxi-

mately 1- acre open camping field. Open areas will be separated by a woods edge in order to facilitate support of one large group or several small groups. An additional open field may be located to the north for future expansion of the group camping area. One wash house, that includes hot showers and flush toilets, will be centrally located in relation to the three camping areas.

For accessibility to people of all abilities, drop-off access will be as close to the use area as possible, with several parking spaces in close proximity. One bus parking space will also be in close proximity. For larger groups with more vehicles, additional parking will be available in overflow lots (18) down the hill.

Amphitheaters and Fire Ring

Within a short walk from the group camping facilities and the group cabins will be a fire ring (19) and an amphitheater (20) for group activities. These facilities are proposed to be open to the night sky and are illustrated in Figure 34.

Ranger Residences

For the purpose of public safety and security, two ranger residences will be in close proximity to the EEC and associated facilities. These residences are illustrated in Figure 35. The location for one new residence (21a) will be the bluff above Double Branch, near the former pealot area of the park.

A second ranger residence (21b) is proposed on land-dependent property to the north of the bluff area described above. The existing residence will be evaluated for use as a ranger residence. This location could provide direct access to Clark Loop as well as access to the EEC, group cabins, camping, lake, and other facilities for increased public safety and security.

Maintenance Area

Acquisition of additional property off of Clark Loop is proposed for a maintenance area (22) to serve this section of the park. This location and schematic layout are illustrated in Figure 35. This area is proposed on the adjacent property due to its relatively flat topography and the lack of a suitable site on park property that would

Figure 35: Proposed Maintenance Area and Ranger Residences

allow for appropriate buffers to adjacent land uses. The proposed acquisition land would also allow for a secondary access of maintenance vehicles and delivery trucks to the maintenance area from Clark Loop without having to pass through the main activity areas of the park.

The site maintenance area for the Clear Creek section will be similar in character and function to that in the Jacob Fork section, except with fewer amenities. There are fewer constraints on the proposed land for this facility than in the Jacob Fork section, so it

is estimated to require approximately 1½ acres. The entire area will be enclosed by a security fence.

The facility will contain the following amenities:

- Two 30-foot by 70-foot buildings, including garage bays, carpenter's shop and office, auto shop, storage, office space, restrooms
- Six-bay vehicle storage shed
- Dry storage
- Outdoor vehicle wash area
- Above-ground gas/diesel pumps
- Paved parking (10 spaces)
- Septic appropriately sized for restrooms and equipment wash water
- In addition, the site is large enough to accommodate a barracks facility (with washroom) for seasonal employees.

Drive access width and radii will be sized to accommodate tractor trailers. A filtering system will be provided for stormwater runoff, and the area will be well buffered from adjacent land uses.

Trail Access and Hike-In Primitive Camping

Site analysis reveals much of the Clear Creek section of the park to have inherent constraints for the development of any trail system. These constraints include its bowl-shaped form with slopes exceeding 65% in the upper portions of the watershed. In addition, there are areas that contain sensitive plants as well as high quality natural communities, and many areas that have not yet been fully studied in that respect.

Extensive study of the Clear Creek watershed to try to identify potential trail links between this section of the park and the Henry Fork section led to the conclusion that the lower region of the Clear Creek Watershed, behind and above the proposed Environmental Education Center and group overnight facility development, is fairly gentle and would lend itself well to some shorter hiking loops of one to two miles. It will be important to perform more ecological studies of the lower portions of the watershed, particularly during the spring and summer, in order to identify a sustainable trail alignment that will not impact sensitive plants and natural communities in this area. This will be included in the comprehensive trails assessment recommended in an earlier section of this master plan.

A hike-in, primitive camping area will be located on the crest of a ridge, within this lower portion of the watershed, overlooking the Clear Creek Reservoir (illustrated in Figure 32). There will be 12 sites cleared and spaced at a minimum of 200 feet on center for a backcountry type of experience along with a backcountry toilet facility. This location is a relatively short hike from the proposed Environmental Education Center.

In the future, equestrian access will not be provided into the Clear Creek section of the park for the following reasons:

1) The agreement made between the NC Department of Environment and Natural Resources (DENR) and the NC Department of Health and Human Services during property transfer of 454 acres of NC School for the Deaf land to DENR through South Mountains State Park, was to work together on the design, financing, and development of a "fully accessible, year-round, residential environmental education facility.... The facility will be located on the western side of South Mountains State Park." This agreement further focused this center on state-of-the-art universally designed facilities available for the benefit of people of all ages and abilities (*McKnelly, 2003*).

   It is anticipated that special attention to universal-design details in this section of the park will lead to an increase in field trips by groups of special needs populations. It is unsafe to allow equestrian trail use in the lower portions of the property in association with these anticipated higher visitation numbers of special populations.

2) The upper slopes of the Clear Creek watershed are extremely steep and contain sensitive natural communities. Construction and long-term maintenance of equestrian trails in this terrain would be extremely costly and environmentally damaging.

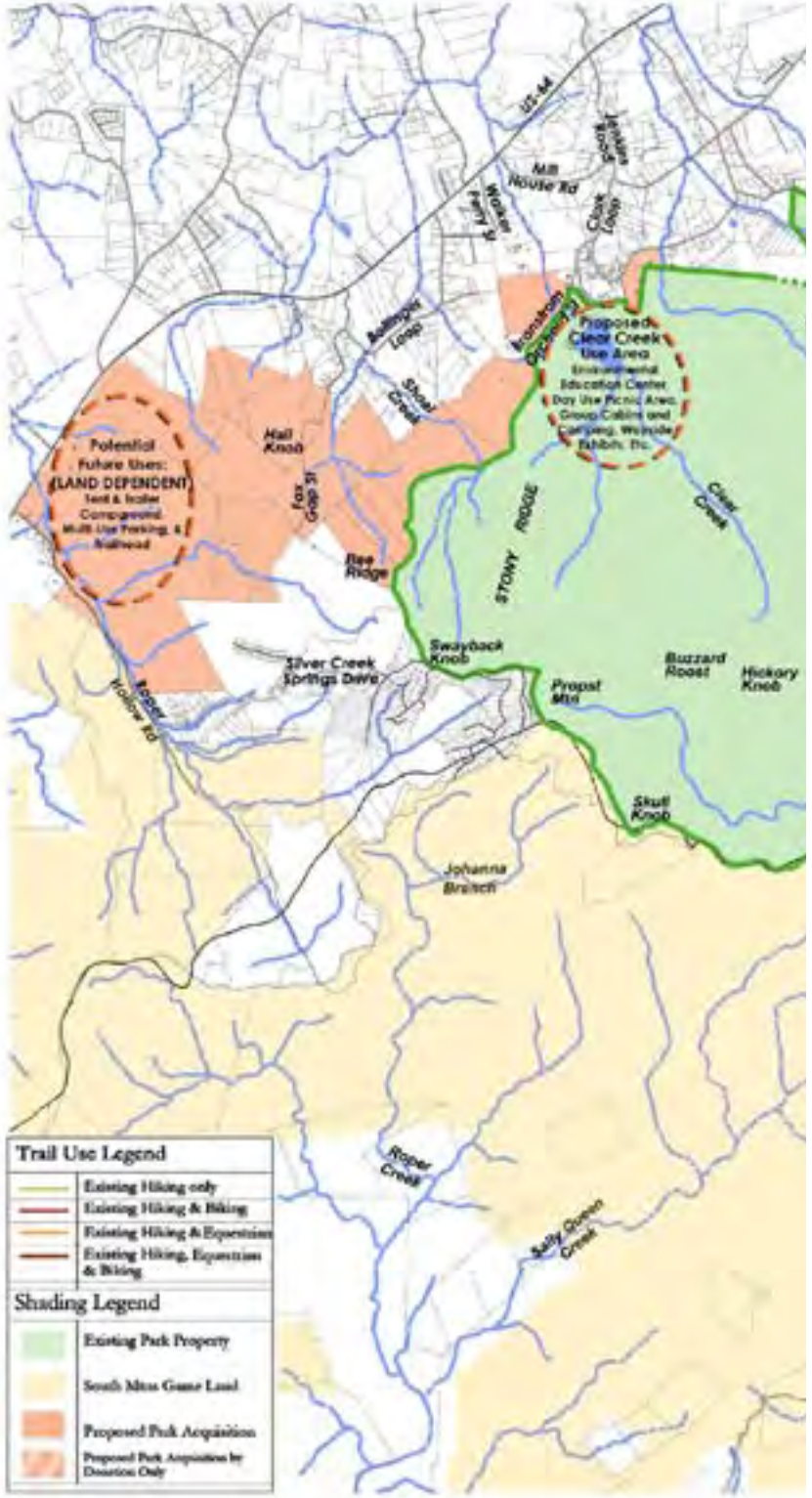
Acquisition Plan

Figure 36 illustrates an overall acquisition plan for South Mountains State Park.

The current park size is 17,481 acres. The properties shown proposed for acquisition total approximately 3,380 acres, bringing the total planned size of the park to 20,861 acres.

In addition to properties mentioned in earlier sections, the NC Division of Parks and Recreation will also evaluate the potential for acquisition of several parcels of land to the west of the Clear Creek section of the park.

Currently, no multi-use trail connection has been identified between Clear Creek and these western parcels proposed for acquisition due to the presence of extremely steep slopes and high quality natural communities. However, additional land acquisition may support other opportunities for multi-use trail connections from the vicinity of US Highway 64. Further field review will be needed.



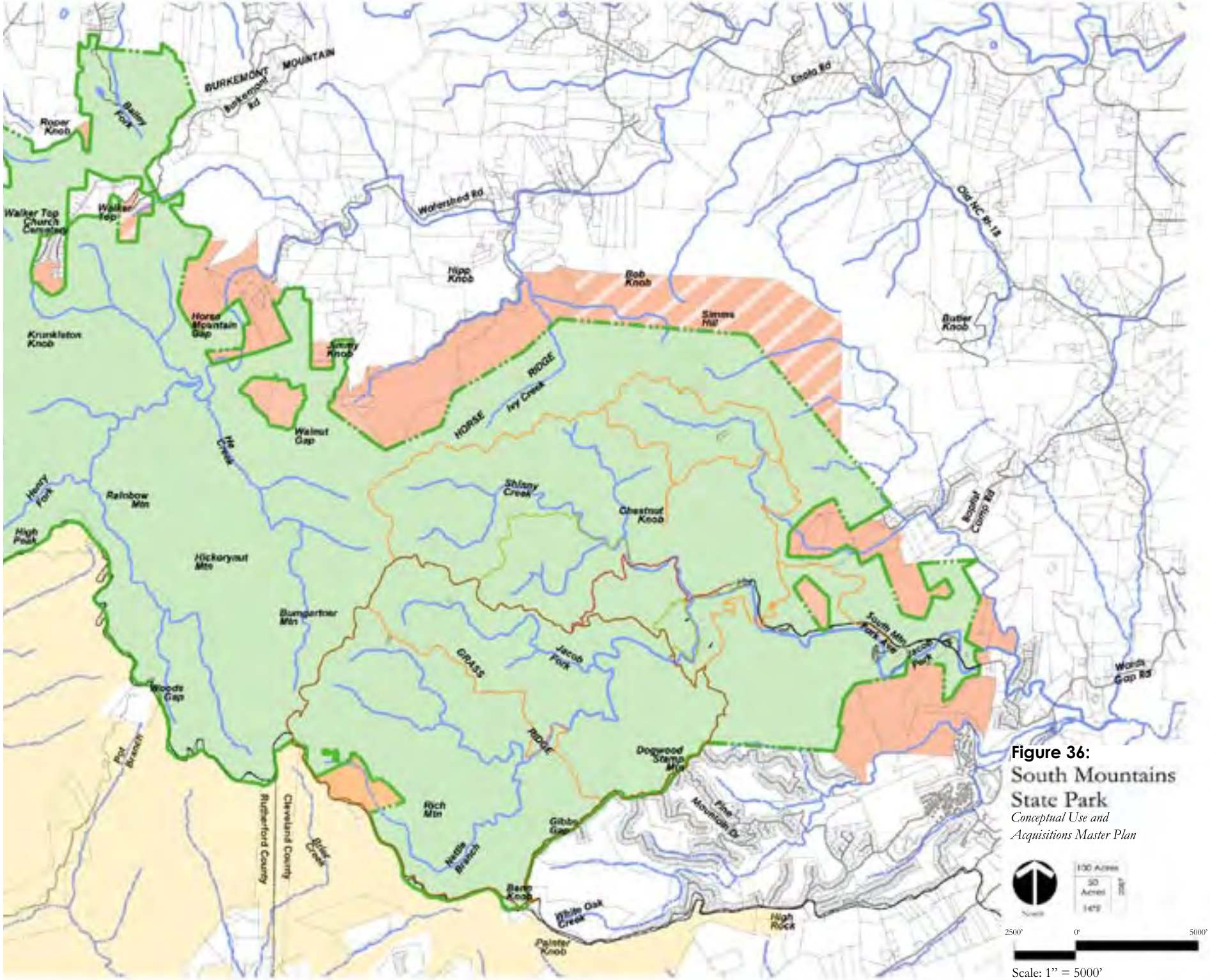


Figure 36:
South Mountains State Park
Conceptual Use and Acquisitions Master Plan

Scale: 1" = 5000'

Defining Sustainable Design in a Park Setting

The NC Department of Environment and Natural Resources' Green Building Policy, drafted by the NC Department of Environment and Natural Resources Sustainability Team and signed by Secretary Bill Ross, directs the department and its divisions "to take real and permanent steps to integrate sustainable and green building practices for projects in capital construction, facility renovations, facility leasing, land development, landscaping and facility purchases."

All components of the master plan have been evaluated and designed based on principles of sustainable design/green design with reference to the Leadership in Energy and Environmental Design (LEED®) design criteria. LEED® is a rating system for green design first developed in 1999 by the US Green Building Council (USGBC). According to the USGBC, "Green design not only makes a positive impact on public health and the environment, it also reduces operating costs, enhances building and organizational marketability, potentially increases occupant productivity, and helps create a sustainable community (*USGBC, 2005*)."

Though a project does not have to be rated through the LEED® system to be considered 'green', the system provides a well-defined baseline from which to begin conversations in design regarding how to develop any new construction project or major renovation in a manner that will be sustainable. The NC Division of Parks and Recreation staff directive states, "The Division is to pursue LEED certification through the US Green Building Council's LEED Green Building Rating System for all new, or significantly renovated, buildings having 5,000 square feet or more. For buildings less than 5,000 square feet, project team members are to be familiar with the use of LEED as a tool to help guide the project."

Much of the LEED® system is focused on structures and will be addressed more thoroughly at later design and development phases for buildings.

LEED® accreditation is based on six areas of sustainability. These include sustainable site, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation and design process. Further description of these areas in the context of South Mountains State Park follows.

Sustainable Site

For this master plan, specific attention has been focused on selection of sustainable sites for future development. Site selection has been based on areas with the following qualities:

- Slopes less than 18%
- Areas more than 50 feet from a water body (construction should not take place within a 100 feet buffer from perennial streams whenever practicable)
- Areas more than 100 feet from a wetland as defined by the National Wetlands Inventory *
- Land that is specifically identified as habitat for any species on Federal or State threatened or endangered lists.

Other focus areas for sustainable sites, elaborated on below, include:

1) Use low impact design strategies
   a) Reduce imperviousness
   b) Conserve natural resources and ecosystems
   c) Maintain natural drainage courses
   d) Reduce use of pipes for stormwater management
   e) Minimize clearing and grading
2) Minimize soil erosion, waterway sedimentation, and airborne particulate/dust generation during construction
3) Disperse stormwater management facilities/structures uniformly across a site
4) Mimic natural systems for stormwater quality control
5) Minimize heat island effects
6) Minimize light pollution.

During the design and construction phases of any project in the park, special attention will be focused on protecting the site from sedimentation, soil erosion, as well as airborne particulate/dust generation during the construction process. Use of best available technology for sedimentation and erosion control is critical. Devices and structures used for sedimentation and erosion control

* Further design and development will require evaluation for wetlands based on 40 CFR Parts 230-233 and Part 22.

will be maintained in good working condition at all times during construction.

Appropriate design for stormwater is important in maintaining a sustainable site. Not only should stormwater design meet state and local codes, it should go beyond these regulations to ensure stormwater quality as the water re-enters the surface and subsurface water cycles. Water quantity controls will minimize the potential for downstream flooding and erosion from site development in the

Cistern examples at Roanoke Island Aquarium

future. Water quality controls, performed by structures such as bioretention areas, will help to maximize sequestration of pollutants to the site of creation as well as protecting areas downstream from these pollutants. All stormwater should flow through a vegetated upland prior to entering a stream or wetland (*NC Wildlife Resources Commission, 2002*).

During construction, all equipment will be kept out of streams as much as practicable. Also, utility lines and infrastructure will be installed outside of stream buffers.

The heat island effect is defined by USGBC as "thermal gradient differences between developed and undeveloped areas" (*USGBC, 2005*). This effect can have negative impact on microclimates as well as human, animal, and plant habitats. Heat islands are most often caused by large areas of unshaded pavement and large roof areas. The master plan begins to address this issue through identification of overflow parking areas that use pervious and plantable materials. Additional attention can be focused on this issue in design and construction phases of a development project through, for example, provision of ample shade in parking areas, use of high reflectance materials for paving (selected with attention to potential glare issues for those with visual disabilities), minimization of structure footprints and therefore roof areas, use of roofing materials with a high reflectance, and/or use of a vegetated roof.

Water Efficiency

Efficient use of water will be considered in every phase of a project for both the site and the buildings. Use of innovative wastewater technologies when possible and water use reduction, through the use of low-flow toilets, showers and other means, are also considered sustainable design practices.

Use of cisterns to harvest rainwater from roof structures can provide water for uses including, but not limited to, landscape irrigation and toilet flushing.

During the design phase of any project at the park, sustainable design principles will dictate design of water efficient landscaping, with an ideal focus toward landscaping requiring no potable water use and no irrigation beyond plant establishment.

Energy Efficiency

Green building practices cost less to operate and maintain. They also provide an opportunity to use natural resources efficiently and responsibly and to reduce the site and building's overall impact on the environment.

Buildings should be optimized for energy-efficiency, including siting buildings with an east-west axis, where practicable, to optimize for passive solar design and the use of broad roof overhangs to block mid-day summer sun. Use of on-site renewable energy sources where possible, including opportunities for solar energy, hydropower, and/or wind power, will make the development more self-sufficient and reduce economic and ecological impacts from fossil fuel use.

Energy-efficient heating and cooling systems, such as geothermal/ ground source wells, use the constant earth temperature to heat and cool the workplace.

It is recommended that a demonstration micro-hydro system be explored at the Clear Creek dam to provide an energy source for the Environmental Education Center or other facilities in this section of the park. Passive solar design of the Environmental Education Center and solar hot water design for wash houses is also recommended where practicable.

Another means of ensuring energy-efficiency as defined by LEED® includes increasing energy performance and commissioning of buildings to ensure that systems are designed and perform in an energy-efficient manner.

Materials and Resources

Sustainable design and construction ensures waste reduction through the design of the building and the construction process. When waste is produced, recycling should be a priority. Reuse of existing building material should also be prioritized.

Design for use of new building materials in the construction process should focus on those materials utilizing recycled content. When recycled content is not possible, products made from rapidly renewable products are desirable and resource friendly. Wood certified using the Forest Stewardship Council's Principles and Criteria will promote sustainable forestry practices.

Ideally, materials will be sourced from producers and manufacturers in the surrounding region. A focus on indigenous materials can replicate a 'local vernacular' as well as minimize environmental impacts from transportation and add to local economic prosperity.

Indoor Environmental Quality

A focus on indoor air quality enhances the health and experience of building occupants. There are many aspects of sustainable indoor air quality performance that can be addressed by a qualified designer, such as adequate ventilation and use of low-emitting material selection (e.g. paints, sealants, adhesives, etc.).

Indoor environmental quality also addresses issues related to lighting controls, thermal comfort, daylighting, and views.

Innovation and Design Process

Sustainable design practitioners can be precedent setters for new, innovative practices in design and construction of sites and buildings. The NC Division of Parks and Recreation can set guidelines for all new construction at South Mountains State Park based on

Solar-powered shower house - Energy Efficiency

Mulching toilet - Water Efficiency

successes displayed and monitored in other projects. The Environmental Education Center proposed in this master plan will provide opportunities for educating the general public and other designers about the ecological, cultural, and economic benefits of green design and construction.

Technologies of Particular Interest

The NC Division of Parks and Recreation staff directive on sustainable and green building practices indicates a particular interest in sustainable and green building technologies that address the following:

- Ecological site design; on-site erosion control, water purification/pollution reduction, and stormwater management.
- Transportation; promoting bicycle, pedestrian, and transit use where possible.
- Waste reduction; building reuse, job site recycling, and efficient use of materials.
- On-site management of sewage and organic wastes, such as graywater systems and biological wastewater treatment.
- Energy efficiency; efficient thermal envelopes, efficient space and water heating, lighting, controls and monitoring, and appliances.
- Renewable energy; photovoltaics, geothermal pumps, and wind turbines.
- Water efficiency, both domestic and irrigation, including rainwater harvesting for irrigation and toilet flushing. Consider waterless urinals in all applications.
- Materials and resources; durable building envelopes and long-lived materials or assemblies, recycled-content materials, safer, less toxic materials, such as alternatives to CCA-treated wood, innovative application of natural materials (characterized by low embodied energy, local availability, good performance, biodegradable, safe, esthetic) such as straw, earth, and other composites.
- Indoor environmental quality; pollution reduction, worker and occupant safety, air cleaning, humidity control, and thermal comfort.
- Operations and maintenance; monitoring energy, water, waste, air quality, and transportation use along with resource-efficient operation practices.

Proposed Capital Improvements

Jacob Fork Section

Project	Cost
1. Camping Improvements: new tent and trailer campground renovation and expansion of existing campground.	$6,496,925.00
2. Equestrian Area Improvements: toilet building, water and electrical service to camp sites	$816,068.75
3. Maintenance Area	$4,175,069.25
4. Day Use Areas Improvements: new picnic area, improvements to existing picnic area, renovation of old park office	$2,651,210.00
5. Improvements to Multi-Use Trails	$2,173,500.00
6. Improvements to Hiking Trails	$1,207,500.00
7. New Multi-Use Trails	$897,000.00
Total for Jacob Fork Section	**$18,417,273.00**

Clear Creek Section

Project	Cost
1. Connection to County Water	$264,500.00
2. Day-Use Picnic Area	$2,508,035.00
3. Environmental Education Center and Support Facilities	$7,703,275.00
4. Group Cabins	$2,657,075.00
5. Group Camping	$798,876.25
6. Maintenance Area	$3,232,960.50
7. Ranger Residence	$921,495.00
8. Trail Access & Hike-In Primitive Camping	$339,250.00
9. Trail Improvements	$3,283,250.00
10. Roper Hollow Tent and Trailer Campground	$3,409,750.00
Total for Clear Creek Section	**$25,118,466.75**

Henry Fork Section

Project	Cost
1. Trail Improvements	$3,550,625.00

Total CI Needs for South Mountain State Park	**$47,086,364.75**

These costs are based upon 2007 construction values using recent bid tabulations with cross reference to RS Means Construction Cost Data. These estimates are to be used for budgeting purposes only and not for construction. This estimate reflects a master planning level of design and does not account for material availability, escalation, or the economy of construction at the time of actual construction. The individual line items include an industry average 10% design fee and 5% contingency.

Acknowledgements

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Data Name. Data Description. Data Source direct to Swanson and Associates, PA. Date of Digital Data.

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APPENDICES

Appendix A - Excerpt from Memorandum of Agreement Between NC Department of Environment and Natural Resources (DENR) and NC Department of Health and Human Services (DHHS)

Principles of Agreement

Both parties agree to coordinate and collaborate on the protection of important natural resources in the School for the Deaf Watershed, and on the development of an environmental education facility to all North Carolina's citizens.

DHHS further agrees:

1) To transfer the School for the Deaf Watershed property to DENR, in accordance with established procedures for the reallocation of state property,
2) To contribute their expertise and knowledge of accessibility standards and needs to DENR's design and operation of a year-round, residential environmental education facility;
3) To assist in obtaining funds for the development of the environmental education facility, particularly from federal grants for which DHHS is eligible;
4) To provide two management positions for educational support designated from the Office of Education Services.

DENR further agrees:

1) To protect and manage the School for the Deaf Watershed property as a part of South Mountains State Park;
2) To design a fully accessible, year-round, residential environmental education facility which is financially and environmentally feasible to construct and operate. The facility will be located on the western side of South Mountains State Park;
3) To incorporate the design ideas and suggestions of DHHS within the constraints of funding, the environmental features of the site, and the mission of the state parks system;
4) To place priority on obtaining funds for construction of the facility, in conjunction with DHHS's ability to obtain matching funds;
5) To solicit and consider input from DHHS in the development of operating, scheduling, and programming policies for the facility.

Appendix B - Summary of Comments on Draft Master Plan

Public Comments in Response to Public Meeting and internet posting of draft Master Plan in May 2007

Comment sheets received:	25	(21 returned at meeting; 4 mailed in)
E-mails received:	59	
Total Responses	*84*	

Subject	***Responses***
General Comments	10*
Clear Creek/Walker Perry Road Access	8, plus petition with 33 signatures
Fishing	1
Hiking Trails	5
Equestrian Trails	17
Mountain Bike Trails	45
Other	2

**Some respondents mentioned more than one subject in their general comments.*

General Comments *10 responses (7 comment sheets, 3 e-mails)*

- Provide ways to bring children and families back to nature.
- Plan allows families to "stay close to the car" and near the park entrances.
- Consider changing "South Mountain Park Avenue" to a "road" designation.
- Work with NC Wildlife Resources on non-hunting uses of South Mountains Game Lands.
- Boy and Girl Scouts used to use shed for weekend campouts.
- Add lights for deaf, education classroom like Lowe Sanctuary in Nebraska, picnic shelter for up to 50 people, climbing skills, boating.
- Will Clear Creek cabins and amphitheater be available for rental?
- In favor of the proposed Clear Creek improvements to serve the people of Rutherford County and other areas west of the Park (including tourists).

- Keep park development at the outer margins and leave the interior as pristine as possible.
- Provide a backcountry hut system.

Access to Clear Creek Section/Walker Perry Road Entrance

8 responses (4 comment sheets, 4 e-mails, and 1 e-mail attachment of a petition with 33 signatures opposing the access road)

All respondents, plus 33 people who signed a petition, were opposed to using Walker Perry Road as a new connector to South Mountains State Park. Concerns included increased traffic, dust, trash, strangers, noise, safety of children, increased taxes, and diminished property values. The properties of many respondents have been in their families for generations. Some feel that a third entrance to South Mountains State Park is not necessary, or that Roper Hollow Road or Jenkins Road/Clark Loop can be used.

Fishing *1 e-mail*

One response in favor of better access to Henry's Fork for fishing.

Hiking *5 responses (4 comment sheets, 1 e-mail)*

- Keep hiking trails separate from equestrian and biking trails.
- Keep picnic areas separate from quieter hiking and primitive camping areas.
- Consider erosion issues when trails are used by equestrians and cyclists.
- Improve trail hiking map and color code the trails.
- Keep Clear Creek for hikers only.
- Establish a trail from Clear Creek side to Jacob Fork side.
- Work with Burke County to do a greenway from South Mountains State Park to US 64 with a parking lot at 64 so people can walk in and out.

Equestrians *17 responses (12 comment sheets, 5 e-mails)*

Other than the comments above which addressed keeping hiking trails separate from equestrian use and expressing erosion control issues, all 17 comments on this subject, most of which were from equestrian groups, were in favor of development and expansion of equestrian trails and facilities into the Clear Creek area, and some respondents advocating extending them into all areas of the park.

Some comments included praise for the existing equestrian facility and extending the bridle trail into the Jacob Fork section. Other comments included:

- Don't put a dump station in the equestrian parking lot.
- What have we learned from the 2004 landslide and 9 month park closure and how is that fitting into the master plan?
- Put tie-ups, picnic tables, and port-a-johns along the equestrian trails.
- Differentiate levels of trails – easy, moderate, difficult.
- Will horses be allowed on the game lands?
- Put combination lock on gates and give number to equestrians for emergencies.
- Turn existing road beds into trails.
- Provide more horse trailer access.
- Purchase Pine Mountain lots along Dogwood Trail to keep road "wild' on both sides.
- Install water and power at every camp site. No one uses tents anymore; horse trailers are now self-contained with living quarters.
- Provide a waste dump station for campers to dump their holding tanks.
- Provide ice every afternoon at 6:00 p.m. for campers. This would cut back on traffic flow to local stores miles away.
- The trail system should allow more than one-way in and out. A new trail located out the back side of the camp ground would be great.
- When will proposed access trail from equestrian campground to Pine Mountain Resort be finished?
- Provide a parking lot suitable for about 12 horse trailers in the Highway 64 area with easy access away from the camping/picnicking areas but very accessible to the CCC road and trails already being ridden.

Mountain Bikes *45 e-mails*

Other than the comments under "Hiking Trails" which addressed keeping hiking trails separate from biking use and expressing erosion control issues, these 45 comments were in favor of biking trails. Most of the comments were from organized groups or from bike trail facilitators. Many of the comments were similar to these:

- Make the trails multi-use or "single track", to be used by both hikers and bikers.
- Provide challenging grades.
- Provide another "biking destination" in NC that is a little closer to the center of the state.
- Off-road cyclists are a growing demographic and would bring a large user base to South Mountains State Park and help the economy.
- Consider using one of the organizations that hold trail-building clinics and assist in designing, building and maintaining single-track trails in North Carolina. A clinic was held at Lake Norman State Park.
- Single track trails are typically built and maintained with volunteer labor supplied by local mountain bike clubs.
- Funds may be available through "Clean Water" or other funding.
- Bike trails cause less erosion than equestrian trails.

Other *2 responses (1 comment sheet, 1 e-mail)*

- Include an off-road vehicle trail on the old CCC road connecting Watershed Rd. and Roper Hollow., developed in a regulated and environmentally friendly way, with primitive camping facilities.
- Provide areas for hunting with a permit system to allow limited opportunities, especially in the areas away from hiking and horse trails.

Comments from NC State Clearinghouse on Draft Master Plan

In order to identify important issues early in the environmental review process, the Natural Resources Program circulated a scoping letter through the NC State Clearinghouse that requested comments on pertinent regulatory and resource protection issues. We received comments from the NC Natural Heritage Program (NHP) and request that these be included in Appendix A. The NHP noted:

1. Appreciation that none of the facilities are sited within Significant Natural Heritage Areas or the Dedicated Nature Preserve.

2. Concerns over important bat habitat and the bat species documented from the proposed camping loop on the Jacob Fork area. (These species include the Rafinesque's Big-eared Bat, which is federally-listed as a Species of Special Concern; Silver-haired Bat, which is state-listed as Significantly rare; Hoary Bat, which is state-listed as Significantly rare; and the Northern long-eared *Myotis*, which is state listed as Special Concern). NHP requested survey of the bats and habitat in the area and that extra care be taken to study the compatibility of placing a camping area in this area.

3. Concern about siting a maintenance area close to the river. Would this increase the risk of fuel spills or effluent tanks getting into the river? How wide and intact will the buffer between the river and the maintenance area be?

4. Concern about presence of wetland habitat and potential impacts from crossings.

Comments from US Fish and Wildlife Service on Draft Master Plan

1. *Rare Species*: If it is determined that any proposed activities may adversely affect any species federally-listed as endangered of threatened, formal consultation with the US Fish and Wildlife Service must be initiated. Although federal species of concern such as the Rafinesque's big-eared bat are not subject to the provisions of the Endangered Species Act, the US Fish and Wildlife Service has included them in its response with a request to protect them.

2. *Erosion Control and Wetland/Stream Protection*: The Service's principal concern is the potential impacts to wetlands and streams. It strongly prefers that the equestrian trail be routed through the existing equestrian campground and that stream crossings be routed to existing bridges. Other alternatives - new bridges or in-stream fords - are considerably more environmentally damaging. The Service prefers Alternative 1 (the land-dependent Tent and Trailer Campground) for the tent and trailer campgrounds at Jacob Fork because it will not involve a new crossing of the Jacob Fork or the three tributaries in the area.

3. *Storm water*: The expansion will create more impervious surfaces, which collect more pollutants and quickly transmit them to receiving waters. This nonpoint source pollution is one of the major threats to water quality in the United States. Best management practices can reduce, but not eliminate, pollutant loadings of common storm water pollutants. The NC Wildlife Resources Commission has developed a "Guidance Memorandum to Address and Mitigate Secondary and Cumulative Impacts to Aquatic and Terrestrial Wildlife Resources and Water Quality" that we support and encourage you to use. It is available at: http://www.ncwildlife.org/pg07_wildlifespeciescon/pg7c3_impacts.pdf

4. *Recommendations for addressing impacts associated with this project*:
- Use on-site storm water management (i.e., bioretention areas) that result in no net change to watershed hydrology. All storm water outlets should drain through a vegetated upland prior to reaching any stream or wetland.

- Preserve or restore forested riparian buffers. Because of the aquatic resources in the project area, forested riparian buffers should be created or protected for a minimum of 100-feet wide along perennial streams and 50-feet wide along intermittent streams.

- Install and maintain stringent measures to control erosion and sediment and to prevent unnecessary impacts to aquatic resources within and downstream of the project site.

- Use bridges for all permanent roadway crossings of streams and associated wetlands. We recommend the use of spanning structures because they minimize impacts to aquatic resources. All wetland/stream crossings should be made perpendicular to the stream. If culverts are used, arched culverts are preferred; however, any type of culvert that is used should allow for the passage of aquatic life. We recommend the use of multiple barrels (other than the base-flow barrel), placed on or near stream bank-full or floodplain bench elevation, in order to accommodate floodwaters within the stream corridor.

- Install utility lines and infrastructure outside the above-recommended riparian buffers. Crossings should be kept to a minimum, and should be near perpendicular to stream flow.

- Directional boring beneath streambeds should be used for utility crossings.

- Keep equipment out of streams by operating from the banks in a fashion that minimizes disturbance to woody vegetation.

- Avoid the complete clearing of land. If clearing is necessary, efforts should be made to avoid the removal of large trees at the edges of construction corridors.

Appendix C - State Parks Act
(North Carolina General Statutes - ARTICLE 2C)

§ 113-44.7. Short title.
This Article shall be known as the State Parks Act. (1987, c. 243.)

§ 113-44.8. Declaration of policy and purpose.
(a) The State of North Carolina offers unique archaeologic, geologic, biological, scenic, and recreational resources. These resources are part of the heritage of the people of this State. The heritage of a people should be preserved and managed by those people for their use and for the use of their visitors and descendants.
(b) The General Assembly finds it appropriate to establish the State Parks System. This system shall consist of parks which include representative examples of the resources sought to be preserved by this Article, together with such surrounding lands as may be appropriate. Park lands are to be used by the people of this State and their visitors in order to promote understanding of and pride in the natural heritage of this State.
(c) The tax dollars of the people of the State should be expended in an efficient and effective manner for the purpose of assuring that the State Parks System is adequate to accomplish the goals as defined in this Article.
(d) The purpose of this Article is to establish methods and principles for the planned acquisition, development, and operation of State parks. (1987, c. 243.)

§ 113-44.9. Definitions.
As used in this Article, unless the context requires otherwise:
(1) "Department" means the Department of Environment and Natural Resources.
(2) "Park" means any tract of land or body of water comprising part of the State Parks System under this Article, including existing State parks, State natural areas, State recreation areas, State trails, State rivers, and State lakes.
(3) "Plan" means State Parks System Plan.
(4) "Secretary" means the Secretary of Environment and Natural Resources.
(5) "State Parks System" or "system" mean all those lands and waters which comprise the parks system of the State as established under this Article. (1987, c. 243, s. 1; 1989, c. 727, s. 218(50); 1989 (Reg. Sess., 1990), c. 1004, s. 19(b); 1997-443, s. 11A.119(a).)

§ 113-44.10. Powers of the Secretary.
The Secretary shall implement the provisions of this Article and shall be responsible for the administration of the State Parks System. (1987, c. 243.)

§ 113-44.11. Preparation of a System Plan.
(a) The Secretary shall prepare and adopt a State Parks System Plan by December 31, 1988. The Plan, at a minimum, shall:
(1) Outline a method whereby the mission and purposes of the State Parks System as defined in G.S. 113-44.8 can be achieved in a reasonable, timely, and cost-effective manner;
(2) Evaluate existing parks against these standards to determine their statewide significance;
(3) Identify duplications and deficiencies in the current State Parks System and make recommendations for correction;
(4) Describe the resources of the existing State Parks System and their current uses, identify conflicts created by those uses, and propose solutions to them; and
(5) Describe anticipated trends in usage of the State Parks System, detail what impacts these trends may have on the State Parks System, and recommend means and methods to accommodate those trends successfully.
(b) The Plan shall be developed with full public participation, including a series of public meetings held on adequate notice under rules which shall be adopted by the Secretary. The purpose of the public meetings and other public participation shall be to obtain from the public:
(1) Views and information on the needs of the public for recreational resources in the State Parks System;
(2) Views and information on the manner in which these needs should be addressed;
(3) Review of the draft plan prepared by the Secretary before he adopts the Plan.
(c) The Secretary shall revise the Plan at intervals not exceeding five years. Revisions to the Plan shall be made consistent with and under the rules providing public participation in adoption of the Plan. (1987, c. 243.)

§ 113-44.12. Classification of parks resources.
After adopting the Plan, the Secretary shall identify and classify the major resources of each of the parks in the State Parks System, in order to establish the major purpose or purposes of each of the parks, consistent with the Plan and the purposes of this Article. (1987, c. 243.)

§ 113-44.13. General management plans.
Every park classified pursuant to G.S. 113-44.12 shall have a general management plan. The plan shall include a statement of purpose for the park based upon its relationship to the System Plan and its classification. An analysis of the major resources and facilities on hand to achieve those purposes shall be completed along with a statement of management direction. The general management plan shall be revised as necessary to comply with the System Plan and to achieve the purposes of this Article. (1987, c. 243.)

§ 113-44.14. Additions to and deletions from the State Parks System.
(a) If, in the course of implementing G.S. 113-44.12 the Secretary determines that the major purposes of a park are not consistent with the purposes of this Article and the Plan, the Secretary may propose to the General Assembly the deletion of that park from the State Parks System. On a majority vote of each house of the General Assembly, the General Assembly may remove the park from the State Parks System. No other agency or governmental body of the State shall have the power to remove a park or any part from the State Parks System.
(b) New parks shall be added to the State Parks System by the Department after authorization by the General Assembly. Each additional park shall be authorized only by an act of the General Assembly. Additions shall be consistent with and shall address the needs of the State Parks System as described in the Plan. All additions shall be accompanied by adequate authorization and appropriations for land acquisition, development, and operations. (1987, c. 243.)

Appendix D - Park History, pre-1979

From:
State of North Carolina, Department of Natural Resources and Community Development, Division of Parks and Recreation, Master Planning Unit. Master Plan: South Mountains State Park. pp. 4-5. January, 1979.

"The South Mountains Range is oriented 60 degrees north of east and includes parts of Burke, Cleveland, and Rutherford Counties. The area encompasses some 100,000 acres.

The mountains are thought to have served as a buffer zone separating the Cherokee and Catawba Indians. Prehistoric hunting and gathering groups probably established temporary camps on the summits of upland divides near streams, and main ridges above large valleys. However, the permanent agricultural villages were along the Catawba and First Broad Rivers. Very little archaeological information is available, and no habitation sites have been identified in the Park.

The first English, Welch, Scotch-Irish, and German settlers chose the fertile bottomland along the Catawba River. By the late 1700's the population of the Burke County area was 2,100 with a few settlers on the fringe of the South Mountains.

The Dave [Bivens] family constructed a cornmill and home on the plateau above High Shoal Falls during this period. The mill was located at the top of the Falls, and the homesite was approximately 250 yards west on Jacob's [*sic*] Fork. The foundation and chimney of the home remains; however, the mill has deteriorated completely over the years.

A second homesite was established by the Johnny Smith family at the present location of the park residence below High Shoals Falls. He and his wife's grave are located next to the residence, however, nothing remains of the original house.

The 1828 gold rush at Brindleton prompted a tremendous population influx in the area. According to local history, Sam Martin discovered gold flakes and grains in the mud use to seal Bob Anderson's log cabin. Martin borrowed a dishpan from Anderson's

wife and panned more gold from a nearby stream. Anderson and Martin became partners, and within a year had mined $40,000 worth of gold.

Prospecting and mining spread rapidly, mostly in the Brindleton and Silver Creek areas. According to early reports, more than one million dollars worth of gold were found. Many new people and wealthy slave holders were lured by the gold rush. By 1833, over 5,000 slaves were mining in addition to the thousands of individual prospectors. Brindleton, Brackettown, Huntsville, and Jamestown were several mining towns that developed overnight.

The bigger mining companies began moving out by 1834, although new immigrants and local residents continued to mine. Only 100 Burke County residents listed 'miner' as an occupation by 1850, and no company or individual was producing annual yields of gold in excess of $500 by 1860.

The South Mountains area was settled by a few pioneers and immigrants from the gold rush. The soil was light and rich in humus in the broad valleys, and could be worked with flimsy tools and plows. New ground was cleared and fenced for planting and livestock.

Tobacco and corn were the primary agricultural crops, and hog farming was very popular. Most small farmers were very independent and depended little on the rest of the county for commodities. Therefore, the South Mountain area changed very little from the late 1800's to the early 1900's.

The first major opening of the park area came in the 1930's when Camp Dryer, a Civilian Conservation Corps camp, (C.C.C.) was established at Enola. Camp Dryer housed over 200 unemployed youths aged 18 to 25. They cleaned stream beds, constructed forest service roads, and built a forest observation tower on Horse Ridge in the Park. The Lower and Upper C.C.C. roads running through the Park are still maintained for fire protection.

Most of the undeveloped mountain land was owned by timber companies, primarily Wright-Bachman (16,480 acres) and Hutton and Bourbonnais (9,900 acres). Historically, these companies removed most of the merchantable timber from the mountains, leaving the second and third growth forests that characterize the area today. In addition, the Town of Morganton, Broughton State Hospital and the State School for the deaf acquired land (4,500 acres, 3,000 acres, and 513 acres respectively) for water supply on the Henry Creek watershed in the South Mountains. Together these landowners formed the South Mountains Association to coordinate a fire protection program with the State Forestry Office.

A Recreation Study completed in April, 1941, by the NC Department of Conservation and Development indicated a need for a State Park in the Burke-Alexander-Caldwell County region, and a National Park Service Study conducted in coordination with the State recommended a site in the South Mountains on Henry Creek. A four-year park feasibility study resulted in an acquisition proposal to the 1945 General Assembly which was defeated, temporarily ending hope for a South Mountain State Park.

Through leasing agreements with private landowners, the North Carolina Wildlife Resources Commission (WRC) established the 11,560- acre South Mountains Wildlife Management Area in the early 1950's. They managed game populations for hunting and fishing. Trout streams were monitored and stocked, and wildlife fields for deer and wild turkeys were maintained during 20 years of management. However, most of the programs were dropped in the late 1960's. A checking station and residence [was] constructed at the old Johnny Smith homesite to monitor hunting activities, and with the cooperation of the NC Forest Service, the old C.C.C. roads were maintained and the old Horse Ridge fire tower was replaced with a new one at Benn Knob.

Ownership gradually changed in the Mountains. Champion International Company acquired much of the Hutton and Bourbonnais property and currently [in 1979] leases 4,690 acres to the WRC for a State Game land. Liberty Life Insurance Company purchased 9,344 acres and leased part of it for a second-home recreational development, Pine Mountain Lakes. The NC Division of State Parks eventually acquired 5,779 acres of Liberty Life's property establishing South Mountains State Park."

Appendix E - NC Division of Water Quality Stream Classification Description

Table 5 summarizes the NC Division of Water Quality stream classification for named tributaries within the park.

Class C - Waters protected for secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, agriculture and other uses suitable for Class *C*. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner. There are no restrictions on watershed development or types of discharges.

Trout Waters (Tr) - Supplemental classification intended to protect freshwaters for natural trout propagation and survival of stocked trout. This designation affects wastewater quality but not the type of discharges and there are no watershed development restrictions except stream buffer zone requirements of NC Division of Land Resources. DWQ's classification is not the same as the NC Wildlife Resources Commission's Designated Public Mountain Trout Waters classification.

High Quality Waters (HQW) - Supplemental classification intended to protect waters with quality higher than state water quality standards. In general, there are two means by which a water body may be classified as *HQW*. They may be *HQW* by definition or they may qualify for *HQW* and then be supplementally classified as *HQW* through the rule-making process. The following are *HQW* by definition:

- *WS-I*,
- *WS-II*,
- *SA* (shellfishing),
- *ORW*,
- Waters designated as Primary Nursery Areas or other functional nursery areas by the Marine Fisheries Commission, or
- Native and special native (wild) trout waters as designated by the Wildlife Resources Commission.

Water Supply I (WS-I) - Waters used as sources of water supply for drinking, culinary, or food processing purposes for those users desiring maximum protection for their water supplies. These waters are also protected for Class C uses. *WS-I* waters are those within natural and undeveloped watersheds in public ownership with no permitted point source (wastewater) discharges. All *WS-I* waters are *HQW* by definition.

Water Supply II (WS-II) - Waters used as sources of potable water where a *WS-I* classification is not feasible. These waters are also protected for Class C uses. *WS-II* waters are generally in predominantly undeveloped watersheds and only general permits for discharges are allowed. All *WS-II* waters are *HQW* by definition.

Water Supply III (WS-III) - Waters used as sources of potable water where a more protective *WS-I* or *II* classification is not feasible. These waters are also protected for Class *C* uses. *WS-III* waters are generally in low to moderately developed watersheds. General discharge permits only are allowed near the water supply intake whereas domestic and nonprocess industrial discharges are allowed in the rest of the water supply watershed.

Outstanding Resource Waters (ORW) - Supplemental classification intended to protect unique and special waters having excellent water quality and being of exceptional state or national ecological or recreational significance. To qualify, waters must be rated excellent

Stream/Creek	Watershed	DWQ Class Within SOMO
Ivy Creek	Henry Fork	C Tr+
He Creek	Henry Fork	WS-I ORW → C ORW
Jerry Branch	Henry Fork	WS-I ORW → C ORW
Henry Fork	Henry Fork	WS-I OWR
Shinny Creek	Jacob Fork	WS-III Tr ORW
Jacob Fork	Jacob Fork	WS-III Tr ORW
Nettle Branch	Jacob Fork	WS-III Tr ORW
Murray Branch	Jacob Fork	WS-III Tr ORW
Little River	Jacob Fork	WS-III Tr ORW
Double Branch	Silver Creek	C
Shoal Creek	Silver Creek	C HQW
Bailey Fork	Silver Creek	C HQW
Clear Creek	Silver Creek	C HQW → C ORW

Table 5: NCDENR DWQ Classifications of South Mountains State Park's Surface Waters

by the NC Division of Water Quality and have one of the following outstanding resource values:

- Outstanding fish habitat or fisheries,
- Unusually high level of waterbased recreation,
- Some special designation such as NC or National Wild/ Scenic/Natural/Recreational River, National Wildlife Refuge, etc.,
- Important component of state or national park or forest, or
- Special ecological or scientific significance (rare or endangered species habitat, research or educational areas).

No new discharges or expansions of existing discharges shall be permitted. There are associated development controls enforced by the NC Division of Water Quality. *ORW* areas are *HQW* by definition.

Appendix F - Detailed Geology Data

The adjacent map represents data collected by Sarah Bier in the South Mountains Range for her University of Tennessee thesis in 2001 (*Bier, 2001*).

Map Legend

Qal - Alluvium - Unconsolidated stream deposits of gravel, sand, silt, and clay.

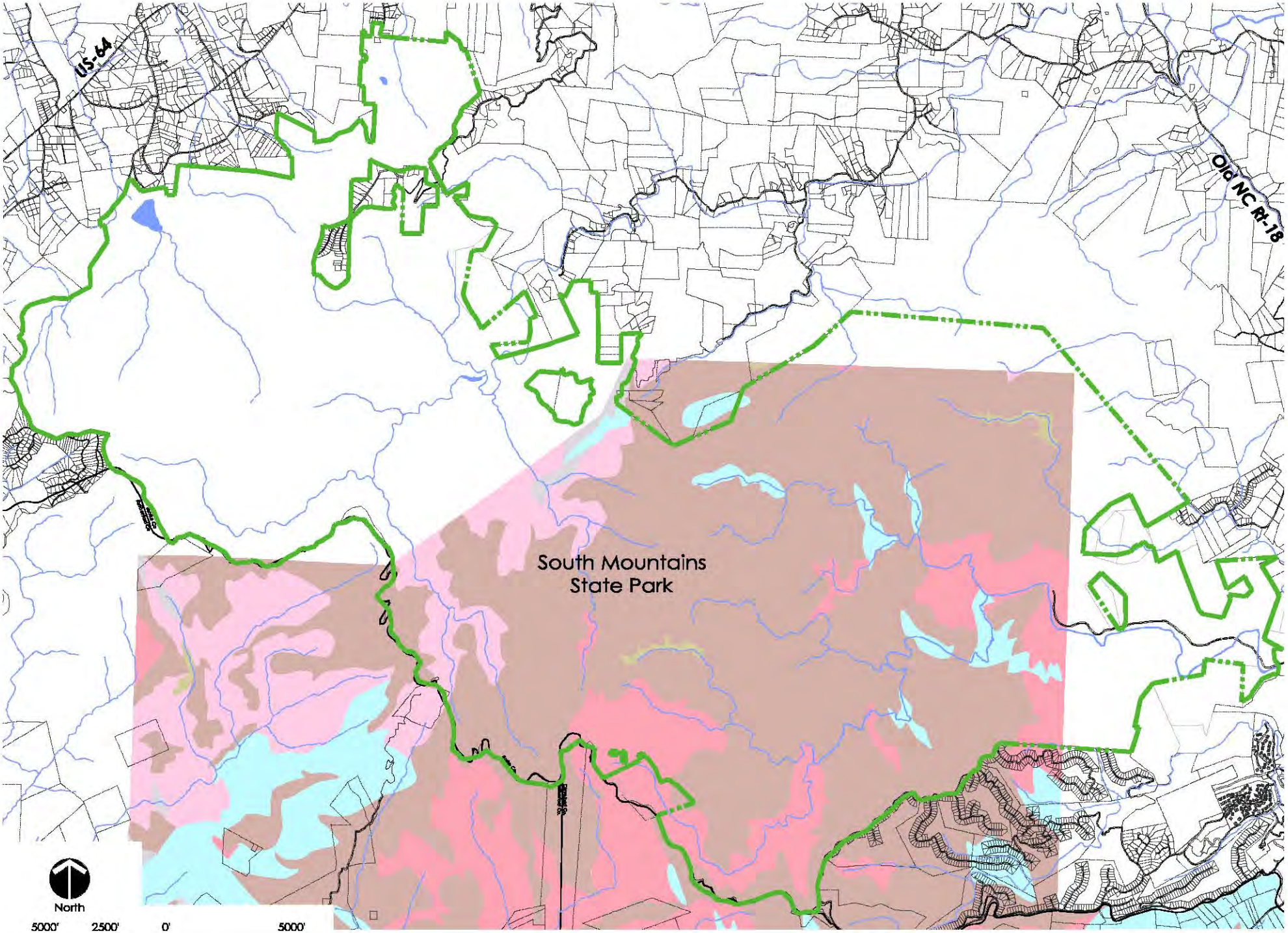
wtg - Walker Top orthogneiss - Granite to granodiorite, grey, massive, weakly foliated, porphyroblastic. Microcline megacrysts (18-35%) are often rimmed with myrmekite. Matrix is composed dominantly of fine- to medium-grained quartz (14-16%), bioite (13-22%), plagioclase (15-26% An25-35), microcline (5-18%), and minor amounts of muscovite (1-3%). Accessory minerals include garnet, zircon, apatite, and opaques.

utf - Upper Tallulah Falls Formation - Metagraywacke-schist, light-gray to dark-gray, medium to fine-grained, massive- to thick-layered, well-foliated, commonly porphyroblastic. Major minerals are quartz (19-40%), plagioclase (16-32%, An20-30), biotite (32-38%), and muscovite (3-9%). Minor constituents are sillimanite, epidote, microcline, chlorite, and opaques. Layer thickness varies from a few millimeters to several meters. Foliation is defined by biotite and muscovite in the gneiss and schist. Biotite schist, granitic gneiss, and calc-silicate occur throughout the unit.Probably derived from feldspathic sandstone.

ss - Tallulah Falls aluminous schist - Aluminous schist, light- to dark-silver-gray, inequigranular to porphyroblastic. Minerals include quartz (19-32%), plagioclase (6-15%, An20-30), muscovite (6-41%), sillimanite (16-42%), biotite (2-25%), and garnet (4-13%). Accessory minerals include chlorite, epidote, zircon, and opaques. Subhedral garnet porphyroblasts up to 4 mm in diameter occur in a fine-grained matrix. Weathers to grayish-red-purple saprolite. Probably derived from argillaceous rocks.

ltf - Lower Tallulah Falls Formation - Metagraywacke-biotite gneiss, light-gray to dark-gray,medium- to fine-grained, massive- to thick-layered, wellfoliated, commonly porphyroblastic. Major minerals include quartz (12-45%), plagioclase (22-36%, An45-55), biotite (15-26%), muscovite (1-19%), k-feldspar (<1-19%), and garnet (1-25%). Minor contituents include sillimanite, chlorite, and opaques. Muscovite-biotite schist, granitic gneiss, and amphibolite occur throughout the unit. Probably derived from feldspathic sandstone. (Description from Giorgis, 1999).

tg - Toluca Granite - Granite, gray, gneissic, medium-grained, granoblastic. Major minerals include plagioclase (18-42%, An20-30), microcline (15-44%), quartz (17-25%), muscovite (2-22%), biotite (1-16%), and garnet (<1-4%). Accessory minerals include monazite, zircon, ilmenite, and rutile. Weathers to white and tan saprolite, and contains xenoliths of biotite gneiss (utf).



South Mountains State Park Geology

Sara Bier, Geology of the Southeastern South Mountains, North Carolina, August 2001

Appendix G - Terms and Conditions for Dedicated Nature Preserves

1. *Definitions*: As used in this allocation, the terms "natural area," and "nature preserve" have the same meaning as contained in North Carolina General Statutes 113A-164.3.

2. *Dedication*: The Preserves, as described in this Allocation, are hereby dedicated as nature preserves for the purposes provided in the Nature Preserves Act.

3. *Primary Custodian*: The primary Custodian of the Preserves will be the Department of Environment and Natural Resources, Division of Parks and Recreation.

4. *Primary Classification*: The primary classification and purpose of the Preserves will be conservation, scientific research, passive recreation, and nature education.

5. *Rules for Management:*

A. Character of Visitor Activity: The principal activities in the Preserves shall be non-consumptive outdoor recreation and education in designated areas. These activities may be regulated by the Custodian to protect and conserve the natural values of the preserve.

Activities and uses unrelated to those listed above are prohibited except as provided in this Dedication or unless necessary to carry out the purposes of the Preserves. Prohibited activities include, but are not limited to, commercial development, commercial silviculture, agriculture and grazing, gathering of plants or plant products for purposes other than approved research, the removal, disturbance, molestation, or defacement of minerals, archaeological and natural resources, and those activities specifically restricted in this Dedication.

B. Visitors and Visitor Facilities: The Custodian reserves the right to orient and guide visitors for educational programs, scientific research, and Preserve management. Exhibits, programs and printed materials may be provided by the Custodian. The Custodian may create and maintain nature trails, overlooks, boardwalks, and primitive campsites adequate to promote the permitted use of the Preserves. Guardrails, fences, steps, bridges, and boardwalks may be provided when appropriate. The Custodian reserves the right to erect structures necessary to protect the Preserves from unwanted or excessive visitor traffic and structures to restrict visitor access to sensitive environmental resources.

The Custodian may construct and maintain service roads for patrol, fire control, right-of-way maintenance, and other management activities. The Custodian may maintain roads presently existing within the Preserves. Otherwise, the construction of roads will be prohibited.

C. Other Structures and Improvements: Buildings or facilities other than those defined above shall not be erected by the Custodian within the Preserves.

D. Research and Collecting Permits: Any person wishing to engage in scientific research or collecting shall first secure written permission from the Custodian.

E. Vehicles: There will be no horseback riding or bicycling except on trails designated for these purposes and no use of any motorized vehicles except boats. The Custodian may use vehicles as necessary for the management of the Preserves.

F. Excavation: There will be no mining, drilling, removal of topsoil, sand, gravel, rock, minerals, or other material, nor any change in topography or surface hydrology of the Preserves.

G. Water Level Control: The purpose of water level control shall be to maintain the Preserves' natural water regimes. Water levels that have been altered by human activities may be changed, if necessary, to restore the Preserve to its natural condition. In a Preserve with a long history of managed hydrology, water levels may be managed to perpetuate the ecosystems that have evolved around the hydrology. Millponds are an example of situations in which water levels have been historically managed.

H. Bringing in Flora and Fauna: No exotic flora and no animals except leashed dogs and cats, horses on trails designated for horseback riding, or animals being reintroduced shall be brought into the Preserves. Any reintroduction will be of species native to the natural community and shall be done according to an approved resource management plan.

I. Fire: Use of prescribed burning is permitted as necessary for the biological management of the Preserves. Any prescribed burning must be done according to an approved fire management plan

for the park unit in question. Fires are also permitted in conjunction with supervised activities of the Custodian, or in designated areas within primitive campsites.

J. Disturbance of Natural Features: The disturbance of other natural features is prohibited except for control of disease that would damage or reduce the significance of the Preserves, reduction of fire fuel load after severe storm damage, or for purposes of ecological management as stipulated in the Park unit's approved management plan and that which is consistent with the purposes of this Dedication.

K. Control of Populations (natural and exotic): Any control of animal or plant populations, other than fishing, shall be only to correct situations where populations have been significantly altered from natural conditions. The Custodian may, in accordance with an approved resource management plan, apply biological controls, herbicides and pesticides, and other means deemed necessary or appropriate to control or eradicate exotic or native species of plant or animal that are degrading the natural character of the Preserves.

L. Control of Natural Processes: Natural processes will be managed according to the policy of the North Carolina State Parks Natural Resource Management Policy. Generally, natural resources will be managed by allowing natural environments to evolve through natural processes with minimal influence from human activities. Exceptions are enumerated in the Policy Statement.

M. Management Plan: These rules for management constitute a management plan within the meaning of NCAC T15A:12H.Q401 until detailed plans for each park are prepared. The dedicated nature preserves will continue to be subject to other applicable regulations within NCAC Title T15A, chapter 12. Where contradictions may arise between this instrument of dedication and other management regulations, the terms of this Dedication shall take precedence.

6. Amendment, Modification, and Termination: Any changes to this Dedication must be made in accordance with the provisions of North Carolina General Statutes 113A-164.8, which require the approval of the Governor and the Council of State.

7. Permanent Plaque: The Custodian should display a permanent plaque or other appropriate marker at a prominent location in the office of the appropriate park unit.

Appendix H - Master Plan Staffing Requests

Traditionally with the construction of new facilities or the acquisition of land, new staff are hired to assist in supporting maintenance, operations and visitor use. The staffing requests shown below are based on levels needed to support the various types of planned uses in the Clear Creek Section and the Jacob Fork Section of the park.

Clear Creek Section

Facilities supported:	Environmental Education Center, Day-use Picnic Area, Maintenance Area
Permanent staff:	Environmental Education Director, Park Ranger I, Maintenance Mechanic IV
Seasonal staff:	2 General Utility Workers, Peak Load Office Assistant
Facilities supported:	Group Cabins, Group Camp, Ranger Residence(s), Hike-in Campsites
Permanent staff:	Maintenance Mechanic III, Environmental Education Assistant Director
Seasonal staff:	2 General Utility Workers, 4 Environmental Education Instructors
Facilities supported:	Trail Construction/Improvements, Highway 64 Property Improvements (Equestrian Parking, Tent and Trailer Camping, Day-use/Picnic Area)
Permanent staff:	Park Ranger I (only if a campground facility is constructed.)
Seasonal staff:	General Utility Worker

Jacob Fork Section

Facilities supported:	Maintenance Area, Picnic Area Expansion
Permanent staff:	Maintenance Mechanic III
Facilities supported:	Tent and Trailer Campground, Existing Campground Improvements, Equestrian Area Improvements, Visitor Center Picnic Area
Seasonal staff:	2 General Utility Workers

Appendix I - Park Office Building Inventory

Provided by Charles Brown Architect

Building 31-002, located within South Mountains State Park, formerly served as offices for the park rangers, visitor information and reception, and a workshop. Two metal portable storage sheds and a wood frame lean-to for storage are located adjacent to the former office/workshop building. The metal storage sheds are used for storage of ATVs, chainsaws, and other maintenance equipment. An above-ground gas tank is also located adjacent to the former park office/workshop. Current office and maintenance square footage is well below NC Division of Parks and Recreation standards. A new headquarters building and park visitor center was completed in late 2006, and a new maintenance facility will replace the functions currently in building 31-002. The former office and shop is located at the park's major parking area, serving most trail heads and day areas. Access to the building from the parking lots is by asphalt and concrete walks, but there are currently no ADA compliant routes into the building. It appears that the building was built in three phases. The original building was constructed in 1945 with subsequent additions for storage and a shop. The back office and restroom were added in 1996. The building footprint is L-shaped with the longest dimensions at 64' by 35'-8" (see attached plan). Primary entrances to the building are along the south façade.

A park building inventory was completed (by others) in 1997 and is partially included in this master plan under Building Inventory and Analysis. The intent of this assessment is general in nature. It is not a comprehensive evaluation of the building components and systems. The building is single-story construction, with approximately 1,580 heated square feet. The foundation appears to be spread concrete footings with CMU for the foundation walls to above-grade backfilled and concrete slab on grade. The exterior enclosure is a 2" by 4" wood frame construction at 16" on center, with painted plywood siding. Insulation type in the wall cavity and roof is unknown. The roof framing is 2" by 6" rafters at 24" on center and 1" by 4" purlins and a 5V crimp metal panel exposed fastener roofing. The metal panel roof appears to have received a galvanized coating. This likely indicates the original galvanized finish has deteriorated. If the building is renovated for any occupancy other than basic equipment storage, the roof should be replaced at that time.

The roll up overhead door serving the storage room provides on-grade access to the storage area. There is no direct exterior access into the shop except for a 3'-0" door. The office area is separated from the storage shop area by an 8" CMU interior wall.

The L-shaped plan creates a somewhat hidden yard area north of the building. Portions of the exterior grade on the north side of the building are slightly above the interior finish floor, but there is no apparent water intrusion at this condition. A change in finish floor elevation occurs between storage and shop areas which has been retrofitted with a concrete ramp at the cased opening.

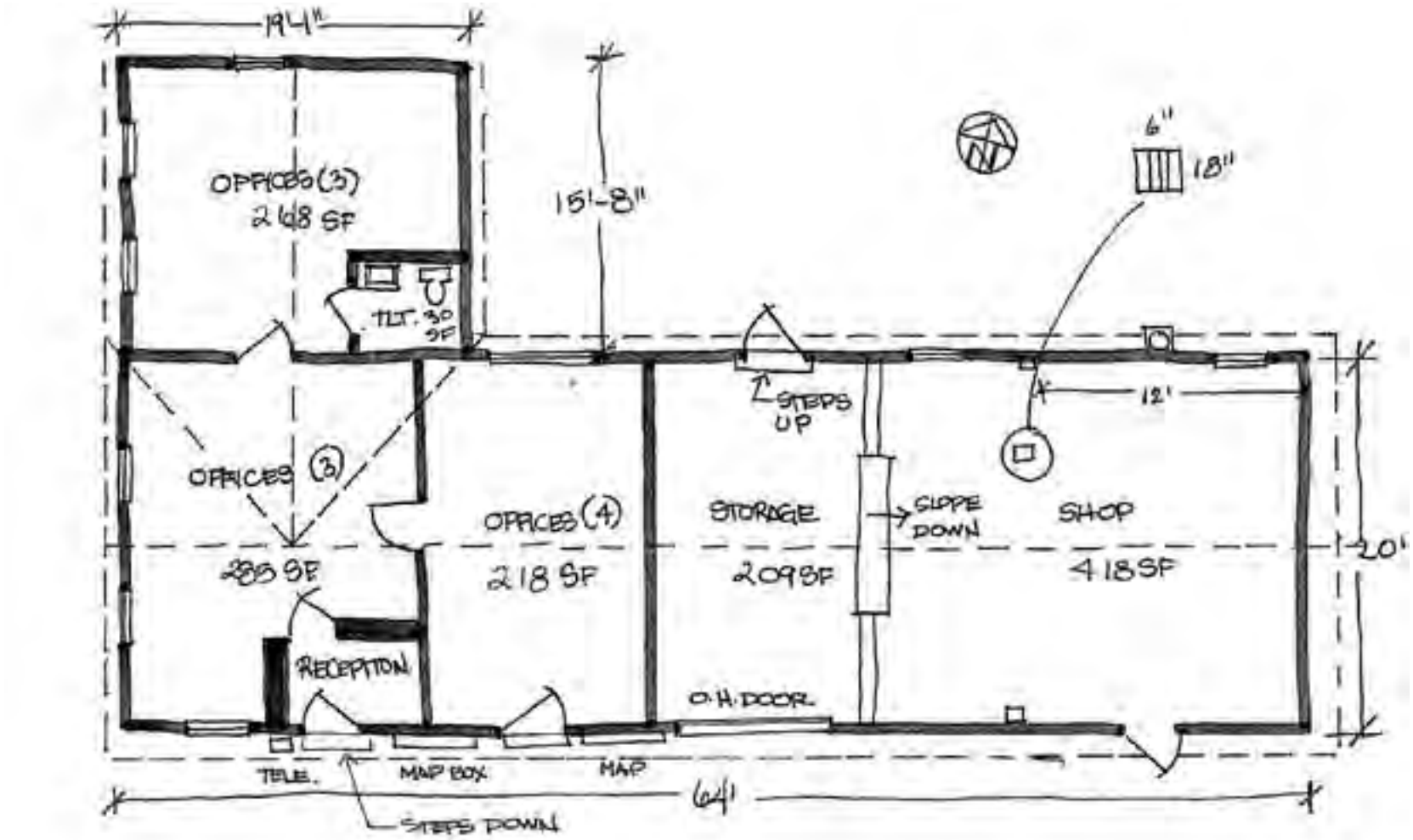
Overall, the former park office and workshop building appears to be structurally sound with no evidence of settling floors and walls. No significant irregularities are apparent in the roof line. All finishes need replacing.

The most economical use for this building with the offices moved out would be equipment storage as this would require minimum renovation. Proximity to trail heads makes ATV and rescue equipment storage a likely future use. It is recommended that the portable metal sheds be moved to the proposed maintenance facility.

The building location is suitable for a remote ranger station. Rehabilitation of the office area for public or office use, while feasible, will be more expensive. The interior finishes, windows and HVAC systems are in need of upgrading. All A/C is provided by window units. A second ADA toilet will be required for most occupancies and it is likely a new septic field/system is needed. Accessibility improvements will also be required. The building size meets the current code construction type appropriate for all occupancy types.

Interior ceiling height is 7'-4"+/- in office areas, 8'+/- in the shop area, and the ceiling is exposed in the storage room. Interior walls and ceiling are drywall and painted plywood. Flooring in the office and toilet areas is vinyl, whereas storage and shop areas have concrete slab on grade. Windows are double hung or awning and are single pane. The building is serviced by three window A/C units and two wall-mounted gas heaters. The shop and storage comprise approximately 680 square feet of space, the offices approximately 870 square feet, and the single unisex toilet 30 square feet.

No sampling or testing of materials for hazardous content is included in this report.



OFFICE AND SHOP South Mountains Bldg 31-002 Scale 1/8" = 1'-0"